

STRATEGY FOR DEVELOPMENT OF
ANACOMP AS THE LEADING COMPANY IN
THE INFORMATION SERVICES INDUSTRY

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APRIL 1982



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I EXECUTIVE SUMMARY

I EXECUTIVE SUMMARY

- The objective for this project was to define a series of acquisitions, grouped in a number of viable scenarios, that would place Anacomp in the position of leading U.S. independent information services vendor by 1986.
- Given the large number of acquirable companies available on the U.S. market today, the number of options that can be meaningfully pursued is considerable. The six scenarios presented in Section VI should only be considered as examples of how Anacomp might proceed. The final choice will very likely be a combination of several of the scenarios with variations in timing, phases, and individual companies chosen. INPUT's own evaluation of an optimum scenario is given in Section B.8 of this chapter.

A. MAJOR FINDINGS

I. REVENUE SOURCE

- The leading independent vendor of information services in 1986 has to be well positioned in all of the high growth markets of the late 1980s. This means that while it may be possible to attain the required revenue base by 1986 in a variety of ways, it is essential that this be achieved by including services that have 1980s' and 1990s' growth potential (as opposed to simply adding volume revenue from stable or stagnant growth sources).

- For example, batch processing revenue is available in large amounts, but will not contribute much to late 1980s' growth. Personal computer software revenue, on the other hand, is acquirable in small amounts currently, but will be a major contributor to revenue growth in the late 1980s and early 1990s.
- Adding companies together presents a compatibility problem. Certain desirable companies do not have entirely desirable product lines when viewed in the context of adding them to other equally desirable acquisition candidates. For example, adding Comshare to Tymshare would create significant difficulties at the product line level (even though both companies use similar hardware) and at the network level (significant overlap).

2. NETWORK

- A principal requirement of all major information services vendors in the late 1980s and early 1990s will be a well established network. The strategic importance of a network lies not only in the remote computing services normally associated with it, but also in its importance to software maintenance, application distribution and support, field engineering, intracompany communications (in the context of 135 U.S. offices and 25 international offices, see Section V-D), and emerging services markets such as consumer services.
- For the purposes of acquiring a network, there are not many independent RCS vendors left on the market. The next five years may very well be the last opportunity to acquire ready-made networks of any significant size. The choice of RCS/network acquisition options in the scenarios is therefore limited.

3. TECHNOLOGY STRENGTH

- Technology strength is important for building capabilities that are not immediately available off-the-shelf as well as for in-house knowledge in specific markets. Similarly, in-house engineering service capabilities allow a

measure of revenue control not available to companies dependent on external field support services. (Example: Tymshare's own field service of on-site hardware means that it controls how much revenue it loses due to hardware downtime, unlike other on-site vendors who rely on external field engineering.)

4. MARKETING/SALES TECHNIQUES

- A major expense in all information services categories is marketing and sales costs, with no immediate sign of the trend to higher costs abating. An important aspect of any acquisition is therefore the search for companies with innovative marketing and sales approaches and experience and effectiveness in this area.

5. LARGEST INFORMATION SERVICES VENDOR

- The goal of "largest information services vendor by 1986" is unattainable. IBM is expected to grow to \$7.7 billion which is more than three times the size that can be envisaged by any other company. It is possible to envisage attaining the position of second largest information services vendor, however, with overall revenues of \$1.9 billion, of which \$400 million would be from international markets. The company would have a U.S. market share of 2.8%.

B. RECOMMENDATIONS

I. SERVICE MIX

- There is a significant difference between the ideal mix of services that the 1986 company would have, and that which is realistically possible:

<u>Services Category</u>	<u>Percent of Total Revenues</u>	
	<u>Ideal*</u>	<u>Realistic</u>
Processing Services	20%	40%
Systems Software	30	15
Applications Software	15	5
Professional Services	20	25
Integrated Systems	15	15

* Based on future growth potential

- The attraction of systems software lies in product stability, its relative independence of the application to which the computer is applied, and the high maintenance revenues generated. Unfortunately, the hardware manufacturers have quickly seized the largest market share of these revenues, with the exception of utilities and data base management systems. Also, vendors are at the mercy of the manufacturers to a large extent.
- Applications software products require staff specialization and, frequently, industry specialization. They also require a significant and constant R&D effort to maintain the products' competitiveness. As a result, a heavy involvement in applications software implies an increasing demand on company resources for maintenance of existing business.
- Realistically, it should be expected that 65% of all 1986 revenues will come from processing services and professional services. The actual mix of these two services depends on whether the processing services option (Scenarios I & II) or the professional services option (Scenario III) is chosen.

2. HIGH GROWTH MARKETS

- An analysis of the high growth markets suggests that over the 1982-1986 period, acquisitions should focus on professional services and systems software

products, particularly those companies serving manufacturing, government, or banking/finance sectors.

- In the latter half of the 1982-1986 period, attention should be given to expanding participation in high growth emerging markets such as business graphics and personal computer software. Beyond 1986, consumer, productivity, and education services should be included.

3. RECOMMENDED SCENARIOS

- Scenarios IV and V add two further aspects to the acquisition strategy planning:
 - Developing a dominant, multiservice vendor position in the banking/finance sector.
 - Developing a large base of small business customers, served by a range of processing, mini/micro software, and integrated systems products.
- The banking/finance scenario (IV) can be viewed either as a complete acquisition strategy by itself or as a vertical market component of a wider acquisition strategy.
- Similarly the small business customer base strategy (Scenario V) can be used by itself or as a horizontal market component of another, wider strategy.

4. CORPORATE IDENTITY

- INPUT also recommends that Anacomp consider two significant changes to its present identity:
 - Location: corporate offices are ideally situated at or near a business/travel crossroads (Los Angeles, New York, etc.), and/or within an emerging/growing business center (Houston, Atlanta, etc.), and/or near

a technological center (Dallas/Fort Worth, Boston, Silicon Valley, etc.). Carmel, Indiana, does not appear to qualify for any of these.

- Name: a company's name should reflect its activities and role in the community; "International Information Services" or similar would seem more appropriate for the 1986 new company.
- These changes are important to Anacomp as its markets expand:
 - Industrial products are typically marketed by a salesperson making a direct call on a potential customer. The prohibitive cost of direct selling is encouraging efficiencies like computer retailing which will almost certainly lead to service retailing.
 - As this happens, and as consumer services expand as a market, the proven technique for establishing leadership in these markets (brand name selling) will reassert itself, and company marketing programs, including a corporate name change, should be designed to strengthen brand recognition.

5. MICROCOMPUTER SOFTWARE

- This rapidly expanding market is populated by three categories of vendors:
 - Microcomputer manufacturers.
 - Software product developers/distributors.
 - Software product distributors/publishers.
- The relationships between these three categories are not always clearly established: for example, a freelance software author may release marketing/distribution rights to a mail-order publisher who sells to retail outlets serving multiple microcomputer manufacturers.

- Moreover, the market is plagued by "pirates" (unlawful users/copiers of program products): it is estimated that as much as 40% of the total user base of the more popular products use pirated copies. Distributor pressure has even forced some vendors to remove copy protection mechanisms from popular products.
- Another major consideration is that until now the microcomputer software industry has been characterized by "garage research" (isolated individuals producing variable quality products with meager resources). Indeed most of the major products in use originated from such individual efforts.
- In the last twelve months a realization of the potential of this market has drawn millions of dollars of research and development from professional organizations into the creation of new products. This could have a serious impact on the future of many small, one-product companies.
- The selection of microcomputer companies presented in Appendix B should therefore be viewed with caution. Many have revenues based on a single product, some are distributors only and do not own a product outright. Others, however, have begun their own acquisition program (e.g., Digital Research's purchase of MT Microsystems, author of Pascal/MTT, in December 1981, and of Compiler Systems Inc., producer of CBasic in September 1981).
- INPUT strongly recommends that Anacomp purchase two or more of these companies to gain a foothold in this very dynamic industry.

6. CAUTIONS

- The scenarios presented make assumptions that may not be entirely plausible, but that were a necessary component of producing the scenarios:
 - The assumed acquisition success ratio is 50%. This may well be the experience Anacomp has had to date with smaller companies, but the

same conditions cannot be expected to apply when purchasing \$100 million corporations.

- It has been assumed that acquired companies continue to grow at their pre-acquisition rate; this is often not the case, however, particularly when independent company managers cash in their stock holding, and lose their incentive at the same time.

7. MARKET VALUE VERSUS REVENUE

- In conjunction with Joseph Morone of Anacomp, a merger analysis model was created from the INPUT revenue projections in an attempt to identify how current market values can be expected to change over the 1982-1986 period.
- This model produced the projection shown in Exhibit I-1.

8. OPTIMAL SCENARIO

- The following section presents an outsider's view of the best acquisition strategy, taking into account a number of assumptions:
 - Within the 1982-1986 period, it is best to go for cheap revenue volume initially (while Anacomp is still small) and gradually target companies with greater market value/revenue ratios (when Anacomp's stock will command a far greater market value itself).
 - It is important to achieve a major acquisition at the earliest moment (otherwise the goal of largest independent by 1986 is difficult to attain).
 - Where possible, choose companies whose products, marketing, sales, and market image are good but which have poor management. If the company acquired can make it with ineffective management, its prospects under better management have to be excellent.

EXHIBIT I
ANACOMP MERGER ANALYSIS SYSTEM

ID NAME	1981			1982			1983		
	Revenue (\$ million)	Mkt. Val. (\$ million)	M/R ratio	Revenue (\$ million)	Mkt. Val. (\$ million)	M/R ratio	Revenue (\$ million)	Mkt. Val. (\$ million)	M/R ratio
1 COMPUTER SCIENCES CORPORATION (CSC)	\$601	\$177	0.295	\$727	\$214	0.295	\$872	\$257	0.295
2 AUTOMATIC DATA PROCESSING (ADP)	558	906	1.624	688	1,117	1.624	851	1,382	1.624
3 ELECTRONIC DATA SYSTEMS (EDS)	455	592	1.301	577	751	1.301	721	938	1.301
4 TYMSHARE	290	215	0.741	359	266	0.741	450	334	0.741
5 BRADFORD NATIONAL	131	32	0.244	144	35	0.244	158	39	0.244
6 INFORMATICS	150	50	0.333	179	60	0.333	212	71	0.333
7 PLANNING RESEARCH CORPORATION (PRC)	314	46	0.146	362	53	0.146	416	61	0.146
8 CHASE ECONOMETRICS/IDC	130	125	0.962	178	171	0.962	234	225	0.962
9 WLY/UCC	147	109	0.741	169	125	0.741	194	144	0.741
10 SHARED MEDICAL SYSTEMS (SMS)	132	338	2.561	167	428	2.561	213	545	2.561
11 SUN INFORMATION SYSTEMS (SIS)	60	64	1.067	74	79	1.067	94	100	1.067
12 COMSHARE	83	34	0.410	101	41	0.410	123	50	0.410
13 TRW	80	81	1.013	91	92	1.013	105	106	1.013
14 QUOTRON	88	258	2.932	112	328	2.932	142	416	2.932
15 AMERICAN MANAGEMENT SYSTEMS (AMS)	66	23	0.348	84	29	0.348	106	37	0.348
16 MANAGEMENT SCIENCE AMERICA (MSA)	73	125	1.712	101	173	1.712	141	241	1.712
17 REYNOLDS & REYNOLDS (R&R)	212	168	0.792	248	197	0.792	291	231	0.792
18 C.A.C.I.	58	36	0.621	95	59	0.621	140	87	0.621
19 SYSTEMS CONSULTANTS INC. (SCI)	68	71	1.044	92	96	1.044	122	127	1.044
20 TELECREDIT	46	54	1.174	53	62	1.174	64	75	1.174
21 DIGICON	108	75	0.694	130	90	0.694	155	108	0.694
22 APPLIED DATA RESEARCH (ADR)	52	36	0.692	62	43	0.692	81	56	0.692
23 SYSTEMS & COMPUTER TECHNOLOGY (S&CT)	45	50	1.111	55	61	1.111	67	74	1.111
24 SYSTEMATICS	36	84	2.333	45	105	2.333	57	133	2.333
25 ADVO	38	44	1.158	45	52	1.158	55	64	1.158
26 FAST-TAX	48	53	1.104	66	73	1.104	90	99	1.104
27 BOLT BERANEK & NEWMAN (BB&N)	55	33	0.600	65	39	0.600	81	49	0.600
28 PANSOPHIC SYSTEMS	21	71	3.381	30	101	3.381	41	139	3.381
29 TRIAD SYSTEMS	78	130	1.667	71	118	1.667	85	142	1.667
30 SAFEGUARD BUSINESS SYSTEMS (SBS)	128	104	0.813	155	126	0.813	189	154	0.813
31 MICROSOFT	14	23	1.643	21	34	1.643	31	51	1.643
32 VISICORP	20	28	1.400	27	38	1.400	36	50	1.400
33 MICROPRO	12	21	1.750	17	30	1.750	25	44	1.750
34 LIFEBOAT	10	20	2.000	32	64	2.000	50	100	2.000
35 CINCOM SYSTEMS	47	53	1.128	63	71	1.128	83	94	1.128
36 CCH COMPUTAX	81	82	1.012	97	98	1.012	118	119	1.012
37 PLUG (ADVO)	19	22	1.158	19	22	1.158	22	22	1.158

(Continued)

EXHIBIT I-1 (Cont.)

ANACOMP MERGER ANALYSIS SYSTEM

ID NAME	1984			1985			1986		
	Revenue (\$million)	Mkt. Val. (\$million)	M/R ratio	Revenue (\$million)	Mkt. Val. (\$million)	M/R ratio	Revenue (\$million)	Mkt. Val. (\$million)	M/R ratio
1 COMPUTER SCIENCES CORPORATION (CSC)	\$1,053	\$310	0.295	\$1,271	\$374	0.295	\$1,540	\$454	0.295
2 AUTOMATIC DATA PROCESSING (ADP)	1,054	1,711	1.624	1,305	2,119	1.624	1,620	2,630	1.624
3 ELECTRONIC DATA SYSTEMS (EDS)	901	1,172	1.301	1,126	1,465	1.301	1,410	1,835	1.301
4 TYMSHARE	567	420	0.741	718	532	0.741	914	678	0.741
5 BRADFORD NATIONAL	174	43	0.244	191	47	0.244	210	51	0.244
6 INFORMATICS	252	84	0.333	303	101	0.333	368	123	0.333
7 PLANNING RESEARCH CORPORATION (PRC)	478	70	0.146	550	81	0.146	632	93	0.146
8 CHASE ECONOMETRICS/IDC	307	295	0.962	404	388	0.962	531	511	0.962
9 WLY/UCC	223	165	0.741	257	191	0.741	295	219	0.741
10 SHARED MEDICAL SYSTEMS (SMS)	271	694	2.561	345	883	2.561	439	1124	2.561
11 SUN INFORMATION SYSTEMS (SIS)	121	129	1.067	155	165	1.067	200	213	1.067
12 COMSHARE	154	63	0.410	193	79	0.410	246	101	0.410
13 TRW	125	127	1.013	149	151	1.013	179	181	1.013
14 QUOTRON	182	534	2.932	231	677	2.932	295	865	2.932
15 AMERICAN MANAGEMENT SYSTEMS (AMS)	132	46	0.348	166	58	0.348	209	73	0.348
16 MANAGEMENT SCIENCE AMERICA (MSA)	197	337	1.712	277	474	1.712	387	663	1.712
17 REYNOLDS & REYNOLDS (R&R)	340	269	0.792	398	315	0.792	465	368	0.792
18 C.A.C.I.	208	129	0.621	285	177	0.621	390	242	0.621
19 SYSTEMS CONSULTANTS INC. (SCI)	165	172	1.044	222	232	1.044	299	312	1.044
20 TELECREDIT	76	89	1.174	92	108	1.174	112	131	1.174
21 DIGICON	187	130	0.694	224	156	0.694	269	187	0.694
22 APPLIED DATA RESEARCH (ADR)	107	74	0.692	141	98	0.692	186	129	0.692
23 SYSTEMS & COMPUTER TECHNOLOGY (S&CT)	82	91	1.111	99	110	1.111	122	136	1.111
24 SYSTEMATICS	71	166	2.333	89	208	2.333	112	261	2.333
25 ADVO	66	76	1.158	81	94	1.158	99	115	1.158
26 FAST TAX	123	136	1.104	169	187	1.104	231	255	1.104
27 BOLT BERANEK & NEWMAN (BB&N)	100	60	0.600	123	74	0.600	150	90	0.600
28 PANSOPHIC SYSTEMS	55	186	3.381	74	250	3.381	100	338	3.381
29 TRIAD SYSTEMS	110	183	1.667	144	240	1.667	187	312	1.667
30 SAFEGUARD BUSINESS SYSTEMS (SBS)	229	186	0.813	278	226	0.813	338	275	0.813
31 MICROSOFT	45	74	1.643	67	110	1.643	99	163	1.643
32 VISICORP	49	69	1.400	66	92	1.400	90	126	1.400
33 MICROPRO	36	63	1.750	52	91	1.750	74	130	1.750
34 LIFEBOAT	79	158	2.000	125	250	2.000	197	394	2.000
35 CINCOM SYSTEMS	109	123	1.128	144	162	1.128	190	214	1.128
36 CCH COMPUTAX	142	144	1.012	172	174	1.012	207	210	1.012
37 PLUG (ADVO)	19	22	1.158	19	22	1.158	201	223	1.158

- The computer equipment base should be shifted to predominantly IBM and IBM-compatibles in the mainframe area and DEC/PRIME in the minicomputer area with some capability in Tandem non-stop equipment, serving the dominant suppliers in each hardware market.
 - Expansion of the small business customer base, products, services, and the distribution channels to serve them are essential to the 1986-1990 growth and to ensure that the company does not isolate itself in the large company markets.
- Note that this scenario is not contradictory with the scenarios presented in Chapter VI which target a particular type of information services company. This scenario emphasizes opportunity, size, growth markets, geographic markets, compatibility of businesses, and 1986-1990 developments.
- The scenario achieves \$2 billion in revenues by the end of 1985, so that 1986 is entered as the largest independent information services company, excluding IBM. Details of the scenario are given in Exhibits I-2, I-3, and I-4.
 - a. 1982 Best Buy: Tymshare
- Reasons: Vital to have a good network; company is technically strong; one of the better marketing/sales organizations; has in-house communications technology capability; is international; has cheap market value and large revenue base.
- This is a very large step for Anacomp and should be the only acquisition in 1982 for the following reasons:
 - Unless a friendly takeover can be organized, it will be a difficult acquisition.
 - The final market value could be around \$500 million, which will strain resources.

EXHIBIT I-2

ACQUIRED COMPANY CONTRIBUTION TO REVENUE GROWTH

1981-1986

(\$ millions)

COMPANY	1981	1982	1983	1984	1985	1986
1. Anacomp	\$106	\$127	\$154	\$ 187	\$ 229	\$ 279
2. Tymshare		359	450	567	718	914
3. Cincom			83	109	144	190
4. McCormack & Dodge			47	78	101	136
5. Micropro			25	36	52	74
6. Safeguard Business Systems				229	278	338
7. American Mgt. Sys.				132	166	209
8. Triad Systems					144	187
9. Fast-Tax					169	231
Year-End Total	\$106	\$486	\$759	\$1,338	\$2,001	\$2,558

EXHIBIT I-3
PRODUCT, SERVICE, SECTOR, AND GEOGRAPHY GROWTH

COMPANY	1981	1982	1983	1984	1985
Anacomp	Micrographics Facilities Mgmt. Software Processing				
Tymshare		Network Services Remote Computing (Professional Services) (Software Products) (Turnkey)			
Cincom McCormack and Dodge Micropro			Systems Software Applications Software Micro Software Professional Services		
Safeguard AMS				Turnkey Systems Micrographics Large Custom Systems Professional Services (Software Products) RCS	Turnkey Systems Processing
Triad Fast-Tax				Manufacturing Utilities Small Businesses Government Cross Industry	Wholesale Retail Tax Returns
Industry Sector Coverage	Banking/Finance State and Local Government Commercial	Banking Credit Card Accounting/Tax Government	State and Local Government Systems Energy Credit Card Property Tax		
Computer Hardware	NCR Burroughs Prime COM	IBM Amdahl DEC Xerox	IBM NCR Prime Minis	IBM DEC	Triad Amdahl Tandem
Geography	U.S.	U.S. France West Germany U.K. Japan	Western Europe South America Middle East Eastern Europe	U.S. Canada U.K.	U.S. Canada U.K.

() = MINOR INVOLVEMENT

EXHIBIT I-4

SERVICE GROWTH BY CATEGORY

1981-1986

(\$ millions)

SERVICES CATEGORY	1981	1982	1983	1984	1985	1986
Processing Services	\$54	\$272	\$317	\$644	\$934	\$1,143
Software Products	10	21	140	195	268	367
Integrated Systems	14	26	34	50	209	271
Professional Services	4	15	20	105	135	181
International	5	22	75	98	129	169
Other	20	131	176	239	323	438
Year-End Total (1)	\$107	\$487	\$762	\$1,331	\$1,998	\$2,569

(1) NOTE: EACH COMPANY SERVICE COMPONENT ROUNDED TO NEAREST MILLION;
 THEREFORE TOTALS WILL NOT AGREE WITH EXHIBIT I-2. EACH INDIVIDUAL
 NUMBER ESTIMATED TO WITHIN 5%.

- If acquired, a management reorganization will be necessary.
 - Significant amounts of Anacomp's management time will be absorbed.
- With the acquisition, industry sector coverage is expanded in banking, transportation, utilities, CPAs, government, and accounting/tax processing.
- Other businesses include third-party maintenance, communications hardware, office automation products, and banking software products.
- Significant management improvements can be made in Tymshare.
- International coverage is expanded to France (excellent contacts with French government), West Germany, United Kingdom, and Japan.
- Equipment base is expanded to IBM, Amdahl, DEC, and Xerox (temporarily), and the company enters 1983 with nearly half a billion dollars in revenue.

b. 1983 Best Buys: Cincom, McCormack and Dodge, and Micropro International

- Reasons: Software coverage of (i) systems, (ii) applications, and (iii) micro-computer/personal computer markets, and good software products distribution channels, both domestic and international.
- Software products are a 1983-1990 growth market. Strong participation in the software markets is essential to being able to control the direction that system development takes, and in any case the software portion of revenues is constantly increasing.
- All key areas of software products are represented here:
 - Data base management (50% of independent installed base).

- Application development tools.
- General business accounting software (see customer base expansion in 1984).
- Microcomputer application software and distribution channels.
- Note that short-term revenue growth is not the goal in this step (\$155 million is added in 1983); long-term revenues are benefitted, however.
- Industry sector coverage is expanded and strengthened with the addition of manufacturing, utilities and cross-industry products, and the broadening of government markets served.
- A further small amount of professional services is added at this point which combines well with the management consultancy services obtained with Tymshare and prepares a framework for the 1984 step into this arena.
- Equipment base is further strengthened with IBM, NCR, DEC, PRIME, and other minis products.
- International markets served are expanded to cover all of Western Europe, parts of Eastern Europe, South America, and the Middle East.
- Small business products are acquired, ready for the 1984 step into this market.

c. 1984 Best Buys: Safeguard Systems and American Management Systems

- Reasons: Strengthen RCS services, obtain huge small business customer base, and add professional services and large custom systems capability.
- The addition of Safeguard brings a network of distributors serving 500,000 small businesses, which combines well with Micropro, Triad (1985), the

accounting/tax services, small turnkey systems products, and also provides a good growth channel for McCormack and Dodge.

- Financial systems and credit card businesses are strengthened, state and local government markets are expanded, and energy and property tax services are added.
- U.S., U.K., and Canadian market coverage is expanded, and the company passes the \$1 billion mark in revenues.

d. 1985 Best Buys: Triad and Fast-Tax

- Reasons: Integrated systems leadership, general small business software, retail outlets, and wholesale distributors all add to the Safeguard acquisition in dynamic synergy. Fast-Tax adds 6,000 accountants' business, furthering the small business services, and offers an opportunity to upgrade this essentially batch business to network services using the cheaper communications and terminal hardware available by this time.
- The \$2 billion in revenue is attained, U.S., U.K., and Canadian market coverage is strengthened, and wholesale/retail market coverage is greatly improved.
- The company can expect 1986 full-year revenues in excess of \$2.5 billion, with services and products covering all major industry sectors, all major growth areas, all major hardware equipment, and all major geographical areas.

C. EXCLUSIONS

- Certain companies were excluded from the scenarios for a variety of reasons:

<u>COMPANY TYPE</u>	<u>REASONS</u>
- CAD/CAM	Anacomp decision
- Seismic exploration	Information services are small percentage of total revenues
- "Embedded" services (e.g., McAUTO, Boeing Computer Services, etc.)	Judged not available
- CPAs (e.g., Arthur Andersen, Coopers and Lybrand, etc.)	Judged not available
- Equipment manufacturers (e.g., Burroughs, Sperry Univac, etc.)	Judged not available
- Banks (e.g., Bank of America, Citicorp, etc.)	Judged not available

II MARKET ENVIRONMENT IN 1986

II MARKET ENVIRONMENT IN 1986

- In order to position Anacomp as the leading independent information services company by 1986, the following are required:
 - Analysis of growth of leading independent information services companies and forecast of their status in 1986.
 - Analysis of growth of major information services markets and forecast of their size and relative importance in 1986.
 - Analysis of the highest growth segments of the information services markets.
 - Identification of new, emerging markets that will have significance by 1986.
 - Forecast of Anacomp's growth without the proposed acquisition program.
 - Alternative scenarios for Anacomp to achieve the stated goal of 1986 market leadership.
- Forecasts presented in this study are based on INPUT's 1981 Annual Report on the Information Services Industry. (Those forecasts were, in fact, overstated since they assumed an economic recovery in 1981/1982, see Appendix D.)

- The economic recession affects information services unequally: software products are performing above average while processing services are suffering reduced growth rates. The scenarios presented are not materially affected by these considerations, except that more weight should be given to the software components.

A. LEADING MANUFACTURERS OFFERING INFORMATION SERVICES, 1986

I. IBM

<u>Segment</u>	<u>1982</u>	<u>1986</u>	Total Revenues (\$ billions)	AAGR 1982-1986 (percent)
• Processing Services	\$ 20	\$ 200		78%
• Professional Services	230	657		30
• Software Products	1,150	3,700		34
• International	<u>1,230</u>	<u>3,000</u>		<u>25</u>
TOTAL	<u>\$2,630</u>	<u>\$7,557</u>		<u>30%</u>
• IBM U.S. Market Share 1986: 8.9%.				

2. CDC

<u>Segment</u>	<u>1982</u>	<u>1986</u>	Total Revenues (\$ billions)	AAGR 1982-1986 (percent)
• Processing Services	\$0.7	\$1.3		16.7%
• Professional Services	0.09	0.2		22.1
• Software Products	0.1	0.24		25
• Integrated Systems	<u>0.02</u>	<u>0.06</u>		<u>31.6</u>
TOTAL	<u>\$0.91</u>	<u>\$1.80</u>		<u>17.9%</u>
• CDC U.S. Market Share, 1986: 2.8%.				
• International 16% of total.				

B. LEADING INDEPENDENT INFORMATION SERVICES COMPANIES IN 1986

- All leading companies will be in the \$1.5 billion to \$1.8 billion range (lower and higher limits, allowing for major unknowns, e.g. project VIABLE for CSC and EDS).
- The top three independent companies will be active in RCS and network services; with either professional services or commercial services as the main offering.
- All top vendors will employ minicomputers, either as integrated systems (turnkey) or as remote satellite nodes to their network services, and/or multiplexors/concentrators on same.

- All top vendors will have significant international business (at least 20% of total revenues).

<u>1981 Rank</u>	<u>Company</u>	<u>1982 Rank</u>	<u>1981</u>	Total Revenues (\$ billions)		AAGR 1981-1986 (percent)	
				<u>Low</u>	<u>High</u>	<u>Low</u>	<u>High</u>
1.	CSC	(1)	\$0.60	\$1.54	\$1.83	21%	25%
2.	ADP	(2)	0.56		1.62		- 23 -
3.	EDS	(4)	0.46	1.41	1.54	25	28
4.	GEISCO	(3)	0.52	1.46	1.70	23	27

MAJOR IMPACTS

1. CSC: "VIABLE" Contract.
2. EDS: "VIABLE" Contract.
3. GEISCO: Higher growth in processing and acquisitions in software products.

C. MARKET SECTOR PARTICIPATION

<u>Company</u>	<u>Sector</u>	<u>Percent of Total</u>
1. Computer Sciences	Federal Government Manufacturing	60% 13
2. ADP	Banking/Finance Manufacturing Wholesale	40 20 15
3. GEISCO	Discrete Manufacturing Process Manufacturing Banking/Finance Federal Government	23 11 10 3
4. EDS	Insurance Federal/State/Local Governments Banking/Finance	48 18 13
5. CDC	Banking/Finance Manufacturing Federal/State/Local Governments Utilities	20 20 10 10

D. HIGH GROWTH INFORMATION SERVICES MARKETS, 1981-1986

I. HIGH GROWTH INDUSTRY SECTORS IN INFORMATION SERVICES MARKET

<u>Sector</u>	<u>1986 (\$ billions)</u>	<u>AAGR 1981-1986 (percent)</u>
• Discrete Manufacturing	\$8.3	28%
• Federal Government	7.5	26
• Banking/Finance	6.8	19
• Process Manufacturing	6.6	31
• State and Local Government	4.2	27
• Insurance	3.5	21

2. FASTEST GROWING INFORMATION SERVICES MARKETS

<u>Market</u>	<u>AAGR 1981-1986 (percent)</u>
A. Systems Software Products	38%
B. Applications Software	27
C. Standard Professional Services	30
D. Industry Specific Remote Computing	22

E. HIGH GROWTH EMERGING MARKETS (TO 1986)

<u>Market</u>	<u>AAGR 1981-1986 (percent)</u>
1. Personal Computer Software	75%
2. Business Graphics	44
3. CAD/CAM	45
4. Communications Networks	40
5. Data Base Services	42

F. LATE 1980s EMERGING MARKETS (1986-1990)

<u>Market</u>	<u>Growth</u>
1. Consumer Services	Not determined
2. Productivity Services	Not determined
3. Education Products/Services	Not determined

III ANALYSIS OF LEADING INDEPENDENT VENDORS

III ANALYSIS OF LEADING INDEPENDENT VENDORS

- As basic material for the analysis and creation of the scenarios, each company in the INPUT 150 ranking (see Appendix C) that was considered "approachable" in terms of an acquisition was reviewed for revenue and net income growth over the 1976-1980 period; the revenues were broken down by type of information service provided and a 1981-1986 forecast by type of service calculated.
- A selection of these companies serves as the building blocks for each of the major scenarios suggested, bearing in mind the principal growth markets, and principal industry sectors.

A. COMPANIES ANALYZED

- After completing the analysis of the acquisition candidate companies, a review showed that the list was weak in (i) mini/mainframe software vendors (since these are generally companies having less than \$50 million revenues in 1981) (ii) major integrated system vendors (iii) microsoftware vendors. Therefore a further eight mini/mainframe software/integrated system vendors were analyzed and a short list of eight microsoftware vendors added, as shown in Exhibit III-1. Exhibit III-2 shows the forecasted growth summary of all the companies.

EXHIBIT III-1

MAJOR SOFTWARE, INTEGRATED SYSTEM, AND
PERSONAL COMPUTER SOFTWARE DEVELOPERS

MAJOR SOFTWARE/INTEGRATED SYSTEM ADDITIONS			
COMPANY	1981 (\$ millions)	1986 (\$ millions)	AAGR (percent) 1981-1986
1. Cullinane	\$29.4	\$189	45%
2. Triad	78.4	187	19
3. Computer Task Group	36.3	182	38
4. McCormack & Dodge	25.6	138	40
5. Kirchman	32.0	136	34
6. Pansophic	30.1	135	35
7. Management Decisions	20	61	25
8. Information Builders	9.5	33.6	29
MAJOR PERSONAL COMPUTER SOFTWARE DEVELOPERS/DISTRIBUTORS			
COMPANY	1981 (\$ millions)	1986 (\$ millions)	AAGR (percent) 1981-1986
1. Microsoft	\$14	\$100	48%
2. Visicorp	20	90	35
3. Micropro	12	75	44
4. Lifeboat*	10	100	58
5. Digital Research	6	50	53
6. Software Publishing	2	50	90
7. SORCIM	1.5	50	102
8. On-Line Systems	1	30	97

*Distributor

EXHIBIT III-2

FORECASTED GROWTH SUMMARY

COMPANY	REVENUES (\$ billions)		[TOP LIMIT]	COMPOUND AAGR 1981-1986 (percent)	[TOP LIMIT]
	1981	1986			
1. Computer Sciences Corp.	\$0.6	\$1.54	\$[1.83]	21%	[25]%
2. Automatic Data Processing	0.56	1.62		23	
3. Electronic Data Processing	0.46	1.25	[1.6]	21	[28]
4. GEISCO	0.5	1.46	[1.7]	23	[26]
5. Tymshare	0.29	0.9		26	
6. NCR	0.18	0.3		15	
7. Bradford National	0.13	0.21		10	
8. Informatics	0.15	0.36		19	
9. Planning Research Corp.	0.13	0.33		20	
10. Chase Econometrics	0.13	0.53		32	
11. Geophysical Services	0.12	0.32		22	
12. Western Geophysical	0.14	0.4		25	
13. GeoSource	0.1	0.29		30	
14. University Computing Company	0.15	0.36		19	
15. Shared Medical Systems	0.13	0.38		26	
16. Sun Information Services	0.06	0.17		24	
17. Comshare	0.08	0.24		23	
18. Xerox Computer Services	0.087	0.19	[0.22]	16	[20]
19. Anacomp	0.15	0.25		15	
20. National Data Corporation	0.076	0.13		10	
21. CCH Computax	0.081	0.2		21	
22. TRW	0.08	0.18		18	
23. Quotron	0.088	0.3		27	
24. American Management	0.052	0.18		28	
25. Management Science America	0.072	0.39		40	

(Continued)

EXHIBIT III-2 (Cont.)

FORECASTED GROWTH SUMMARY

COMPANY	REVENUES (\$ billions)		[TOP LIMIT]	COMPOUND AAGR 1981-1986 (percent)	[TOP LIMIT]
	1981	1986			
26. First Data Management	\$0.056	\$0.1		13%	
27. System Consultants	0.068	0.3		35	
28. Seismograph Services	0.058	0.13		18	
29. Reynolds & Reynolds	0.212	0.42		17	
30. C.A.C.I.	0.059	0.4		46	
31. Telecredit	0.046	0.11		19	
32. Cincom Systems	0.047	0.19		32	
33. Science Applications	0.041	0.16		31	
34. Digicon	0.089	0.22		20	
35. Applied Data Research	0.048	0.14		30	
36. Systems & Computer Sciences	0.045	0.13		22	
37. Systematics	0.036	0.1		20	
38. ADVO	0.038	0.1		20	
39. FastTax (Computer Language Research)	0.048	0.2		37	
40. Dyatron	0.039	0.1		20	
41. Bolt Beranek & Newman	0.028	0.1		30	
42. Pansophic	0.030	0.14		35	
43. Kirchman	0.030	0.14		34	
44. Cullinane	0.029	0.19		45	
45. MDS	0.020	0.06		25	
46. Information Builders	0.010	0.03		29	
47. Computer Task Group	0.036	0.18		38	
48. Triad Systems	0.078	0.19		19	
49. McCormack & Dodge	0.026	0.14		40	

B. ACQUISITION RATINGS CHART

- The principal acquisition candidates were evaluated in Exhibit III-3 according to their relative attraction and compatibility with Anacomp.

I. COMPANY CHARACTERISTICS

1. Management of company
2. Network capability
3. International presence
4. Technical staff strength
5. Marketing strength
6. Sales strength
7. Growth prospects
8. Compatibility of company activities with those of Anacomp
9. Specialty services offered
10. Diversity of markets served
11. Leadership in its market
12. Profitability
13. Technology strength
14. Stability of market place served
15. Staff loyalty
16. Acquisition prospect (likelihood of friendly takeover)

EXHIBIT III-3

EVALUATION OF PROSPECTIVE ACQUISITION CANDIDATES

COMPANY	TOTAL RATING																									
	MANAGEMENT	INTERWORK CAPABILITY	TECHNICAL STAFF PRESENCE	GROWTH PROSPECTS	HOLDING ACTIVITIES WITH	DIVERSITY OF SERVICES	MARKET WITH	COMPATIBILITY PROSPECTS	HOUSING ACTIVITIES WITH	DIVERSITY OF SERVICES	MARKET WITH	PROFITABILITY MARKETS	TECHNOLOGY IN ITS	PLACE SERVICES	LOYALTY PROGRAMS	STAFF LOYALTY	ACQUISITION MARKET	TECHNOLOGY FRIENDLY	PROCESSING SERVICES	SOFTWARE PRODUCTS	INTEGRATED SYSTEMS	PROFESSIONAL SERVICES	SOFTWARE PRODUCTS	INTEGRATED SYSTEMS		
1. CSC	51.5	3	3.5	5	4	3	3	4	1	4	3	4	2	2	4	3	3	3	3	3	3	3	3	0	0	
2. ADP	60	5	4	3	3	4.5	4.5	4	4	4	5	4	3	4	3	1	5	0	0	1	5	0	0	1	0	
3. EDS	51.5	4	2.5	2.5	3.5	3	4	4	3	4	3	3	3	3	5	1	4	3.5	2	2	3.5	2	2	2	2	
4. GEISCO	56	4.5	5	5	4	4	3	4	2	2	3	4	4	3	3.5	4	1	4	3.5	2.5	0	2.5	0	2.5	0	
5. TYSHARE	56	3	5	3.5	3	4	4	3	3	3.5	3.5	4	4	3.5	3	2.5	3	2.5	3	2.5	3	2.5	3	2.5	0	
6. NCR	35.5	1	1	2.5	1	1	1	2	4	4	2	2	3	2	3.5	3	3	0	0	0	0	0	0	0	0	
7. BRADFORD	39.5	2	1	1	3	2	2	3	3.5	4	2	3	2	2	3	2	4	3	1	0	0	0	0	0	0	
8. INFORMATICS	47	2.5	3	3	3	2.5	3.5	2	3	4	3	2	2.5	3	3	4	3	3	3	1	0	3	3	1	0	
9. PRC	39	2	0	4	3.5	2	2.5	3	1.5	3.5	2	3	1	2	3	2	4	3	3	1	0	3	3	1	0	
10. CHASE	54	4	3.5	2	3	3.5	3.5	3	4	4	4	3	3	3.5	3	3	4	2	1	1	1	1	1	1	1	
11. GEOPHYSICAL	43	4	0	3	2.5	3	3	3.5	1	5	1	4	3	3	3	3	1	3	1	1	1	1	1	1	1	
12. WESTERN	41.5	3.5	0	3	2.5	3	3	2.5	1	5	1	4	3	3	3	3	1	3	1	1	1	1	1	1	1	
13. GEOSOURCE	43.5	4	0	3	2.5	3.5	3	3	1	5	1	4	3	3	3	3	1	3	1	1	1	1	1	1	1	
14. UCC	48.5	2.5	3	4	3	3.5	4	4	4	2	5	1	5	3	3.5	3	3.5	4	3.5	3	3	3.5	1	2	1	
15. SMS	55.5	4	3	1	3.5	4	4	4	2	3.5	4	2	3.5	3	3.5	3	3.5	4	2	3.5	2	3.5	2	3.5	2	
16. SUN	49	3.5	3	0	3	3.5	3.5	3	3.5	4	2	5	3	3.5	3	3	3.5	3	3	3	3	3	3	3	0	
17. COMSHARE	53.5	3	3.5	3.5	3	3.5	3.5	3	3.5	4	2	5	3	3.5	3	3	3.5	4	2	3.5	1	2	1	1	1	
18. XEROX	55	4.5	4	1	3.5	4	4	3.5	2	5	3	4.5	3.5	3	3.5	3	3.5	4	2	3.5	1	2	1	1	1	
19. ANACOMP	44.5	4	1	1	2	2.5	3	2.5	3	3.5	4	3.5	3.5	3	3.5	3	3.5	2	3.5	2	3.5	2	3.5	2	3.5	2
20. NATIONAL DATA	42	3	3.5	1	2	3	2	2	3	3	3	2.5	2.5	3	3	3	3	3	3	3	3	3	3	3	0	
21. CCH COMPUTAX	46	3	2	2	3	3.5	3.5	2	4	2	4	2	3.5	3	3.5	3	2	3.5	2	2	3.5	2	3.5	2	3	2

RATING: 1 = LOW, 3 = AVERAGE, 5 = HIGH

EVALUATION OF PROSPECTIVE ACQUISITION CANDIDATES

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RATING: 1 = LOW, 3 = AVERAGE, 5 = HIGH

2. STRENGTHS IN SERVICE CATEGORIES

- 17. Processing
- 18. Professional services
- 19. Software products
- 20. Integrated systems

C. MARKET VALUES

COMPANY NAME	SHARES OUTSTANDING (thousands)	BID OR CLOSE ON 3/9/82	TOTAL MARKET VALUE ON 3/9/82 (\$ thousands)
American Management Systems	1,617	\$21.750	\$ 35,169
Anacomp	9,061	11.375	103,068
Applied Data Research	1,834	19.625	35,992
Automatic Data Processing	33,722	24.500	326,189
Bolt Beranek & Newman	2,074	12.750	26,443
Bradford National	3,986	6.875	27,403
C.A.C.I.	1,033	36.000	37,188
Computer Sciences Corporation	13,351	13.125	175,231
Comshare	4,590	6.500	29,835
Cullinane	6,896	22.000	151,712
Digicon, Inc.	3,713	16.250	60,336
Dyatron	2,452	3.250	7,969
Electronic Data Systems	28,158	19.250	542,041
Informatics	3,214	13.250	42,585
Management Science America	6,564	18.250	119,793

National Data Corporation	2,412	15.000	36,180
Pansophic	7,200	9.750	70,200
Planning Research Corporation	6,718	6.125	41,147
Quotron	7,890	28.750	226,837
Reynolds and Reynolds	8,863	19.750	175,044
Shared Medical Systems	12,001	27.250	327,027
Systematics	4,936	16.750	86,678
Telecredit	2,471	13.000	32,123
Tymshare	11,747	16.625	195,293
Wly Corporation/UCC	13,783	7.750	106,818

**IV ANACOMP'S FORECASTED GROWTH EXCLUDING
ACQUISITION PROGRAM**

COMPANY NAME: ANACOMP, INC.
HEADQUARTERS: 11550, North Meridian Street
 Suite 600
 Carmel, IN 46032
STATUS: Public, OTC **EMPLOYEES:** 1,800
PRESIDENT: Ronald D. Palamara **FISCAL YEAR ENDS:** 6/30
TELEPHONE: (617) 844-9666

HISTORY AND GROWTH

- Founded in 1968 and already one of the fastest growing vendors in the information services market, Anacomp has targeted banking, facilities management, processing services, micrographics, and turnkey systems based on minicomputers and microcomputers. Acquisitions have played a dominant role in the revenue growth, producing an estimated 85% of the total growth both by the addition of the revenues of the acquired companies and from the internal growth of these acquisitions.
- Revenue growth from 1976 to 1981 was at an AAGR of 53% and net income rose at an AAGR of 59%.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$ 12.9	\$ 17.2	\$ 23.4	\$ 41.7	\$ 71.6
Percent Growth	44%	33%	36%	78%	72%
Net Income (\$ millions)	\$ 0.8	\$ 1.2	\$ 1.6	\$ 2.8	\$ 4.9
Percent Growth	(5)%	43%	31%	75%	75%

* = to nearest \$100,000

SERVICE TYPE AND DELIVERY MODE

Estimated as follows:

	<u>Percent</u>	<u>\$ millions, 1980</u>
- Data Services Division	13%	\$ 9.3
- Financial Services Division	42	30.1
- Government Services Division	15	10.7
- Micrographics Division	30	21.5

INDUSTRY SECTORS SERVED

Estimated as follows:

	<u>Percent</u>	<u>\$ millions, 1980</u>
- Banking and Financial	41%	\$29.4
- Government	14	10.0
- Commercial (manufacturing, utilities, distribution, medical, insurance, and education)	45	32.2

INTERNATIONAL MARKETS SERVED

- Foreign revenues, produced by operations in Australia, Europe, the Middle East, and South America are estimated to produce 5% of revenues or \$3.6 million in 1980.

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	<u>1979 (\$ millions)*</u>	<u>1981 (\$ millions)*</u>	<u>AAGR (percent)</u>
- Processing Services	\$15.9	\$ 54	84%
- Professional Services	1.5	4.0	63
- Software Products	3.9	10.4	60
- Integrated Systems	7.1	13.5	38
- International	2.4	4.5	38
- Other	<u>10.9</u>	<u>20.0</u>	<u>35</u>
	<u>\$41.7</u>	<u>\$106.4</u>	<u>60%</u>

* INPUT estimate

PROJECTED GROWTH BY SEGMENT WITHOUT ACQUISITIONS

	<u>Segment</u>	AAGR (percent)	\$ millions/Fiscal Year					
			<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
•	Processing Services	15%	\$ 54.0	\$ 62.1	\$ 71.4	\$ 82.1	\$ 94.5	\$109
•	Professional Services	38	4.0	5.5	7.6	10.5	15	20
•	Software Products	32	10.4	13	17	23	30	40
•	Integrated Systems	28	13.5	17.3	22.0	28.0	36	46
•	International	25	4.5	5.6	7.0	8.8	11	14
•	Other	<u>20</u>	<u>20.0</u>	<u>24.0</u>	<u>29.0</u>	<u>35.0</u>	<u>42</u>	<u>50</u>
	TOTAL COMPANY SIZE	21%	\$106.4	\$127.5	\$154	\$187.4	\$228.5	\$279

1986 MARKET SHARE

- Anacomp is the nation's leading vendor of COM services and has gained a leading role in the provision of continuous integrated systems to the banking community.

**V PROFILE OF THE LEADING INDEPENDENT INFORMATION
SERVICES VENDORS IN 1986**

V PROFILE OF THE LEADING INDEPENDENT INFORMATION SERVICES VENDOR IN 1986

A. REVENUES

- Revenues of \$1.65 billion would appear to be the absolute minimum target to exceed the expected results of ADP in 1986. However, it is expected that several companies have a good chance of exceeding that value, if certain favorable developments occur, and reaching the \$1.7 billion to \$1.83 billion range, (GEISCO, CSC). The target is therefore \$1.9 billion or higher.

B. EMPLOYEES

- Large corporation revenues per employee (all staff included) ranged from \$39,000 (Professional Services) to \$46,000 (Processing Services) in 1980, (smaller software products companies had revenues of \$66,000 per employee). By 1986 these values are expected to have grown to:

<u>Sector</u>	\$ thousands/ <u>employee</u>
Processing	\$ 75
Software Products	130
Professional Services	<u>70</u>
Weighted average	\$ 89

- This means that a \$1.9 billion multiservice company can expect to have 21,350 employees.

C. MARKET SHARE

- With overall revenues of \$1.9 billion (of which \$400 million are from international markets) and a projected 1986 U.S. information services market worth \$53 billion, the company will have a market share of 2.8%. This compares with IBM's projected 8.9% share of the U.S. market and CDC's projected 2.8% share.
- Each scenario identifies the market share obtained in each major market (i.e., according to the services mix of the company in each scenario).

D. MARKET COVERAGE

- INPUT estimates that a company of \$1.9 billion in 1986 would have:
 - One hundred thirty-five city offices in the United States.
 - Twenty-five city offices in international markets. This implies that, on average, each international office will produce more revenue than the average U.S. office (as is the case now for most large international information services companies).
- A viable international presence is needed, generating approximately 20% of total revenues. Importance of international operations is:
 - Leverage of U.S. products, particularly network services, systems software products, and professional services.

- Balancing of revenue source from mix of economies.
- Cross-fertilization of market developments, knowledge.
- Local base for growth by acquisition.

E. 1986 SERVICES MIX

- As an overall target for the mix of information services/products offered in 1986, the following table provides guidance:

<u>Major Segment</u>	<u>Market Size 1986 (\$ millions)</u>	<u>AAGR (percent) 1981-1986</u>
1. Processing Services	\$21,400	17%
- RCS	12,700	21
2. Standard Professional Services	16,000	30
3. Software Products	15,000	33
- Systems	9,500	38
- Applications	5,500	27

- To this the rapidly growing integrated systems market should be added. The resulting "best case" company mix is as shown in the Executive Summary, B.1.

<u>Segment</u>	<u>Revenues 1986 (percent of total)</u>
● Processing services	20%
● Systems software*	30
● Professional services	20
● Applications software*	15
● Integrated systems	15

* Includes personal computer software element

F. ORGANIZATION

- The following lists the main organizational divisions that are likely to be found in the 1986 company (excluding administration, finance, personnel, etc.).

I. CORPORATE SERVICES GROUP

- Planning.
- Business control.
- Acquisitions.
- Public relations.
- Legal.
- Training.
- Approximate size: 200 employees.

2. "COMSOURCE" GROUP

2.1 COMMUNICATIONS DIVISION

- Manages the computer centers.
- Provides the network services.
- Distributes products and services.
- Approximate size: 1,250 employees.

2.2 SYSTEMS DIVISION

- New systems development.
- Existing systems maintenance.
- Software/hardware integration.
- Approximate size: 900 employees.

2.3 SOFTWARE DEVELOPMENT/MAINTENANCE DIVISION

- Microsoftware, systems implementation tools, systems utilities, application software.
- Develops new software systems.
- Enhances existing software systems.
- Maintains existing software systems.
- Acquires new software products.
- Approximate size: 5,500 employees.

2.4 DATA BASE DEVELOPMENT DIVISION

- Produces, captures, and updates the data held on the company's proprietary data bases.
- Approximate size: 450 employees.

3. MARKETING GROUP

3.1 MARKET PLANNING DIVISION

- Analyzes user requirements.
- Produces product, service, and application specifications.
- Evaluates market potential.
- Forecasts trends
- Approximate size: 350 employees.

3.2 PRODUCT MANAGEMENT DIVISION

- Manages the budget, sales, and revenues of each major product/service offered.
- Approximate size: 200 employees.

3.3 SALES DIVISION

- Direct sales.
- Distribution channels.

- Telemarketing.
- Approximate size: 2,750 employees.

3.4 SALES SUPPORT

- Approximate size: 2,000 employees.

3.5 PROFESSIONAL SERVICES

- Approximate size: 6,850 employees.

4. R&D

- Responds to corporate strategy and planning needs.
- Approximate size: 900 employees.

TOTAL EMPLOYEES: 21,350

VI SCENARIOS

VI SCENARIOS

- Each scenario states a goal (targeted company structure) and then discusses the alternatives for achieving that goal through the acquisition of certain companies analyzed earlier. The acquisitions are sequenced and the resulting company is discussed in terms of risks, costs, and potential of the company in 1986.
- In scenarios I, II, III and V, it has been assumed that a personal computer software vendor will be purchased as soon as possible, because:
 - (i) Their growth is such that they will rapidly become either too expensive to buy or bought out by other companies.
 - (ii) Their current rate of development has created the need for expansion capital, a natural entry for prospective purchasers.
- In each scenario, an acquisition hit ratio of 50% is assumed. Therefore for each phase of acquisition an alternate company to the ideal acquisition candidate is provided.
- The assumption is made that the acquired company continues to grow at its "pre-acquisition" rate.
- The scenarios presented are as follows:

1. Construct the largest independent data base processing service company, serving all major growth markets, with a balance of remote computing services (RCS), network, systems software, integrated system, and professional services.
2. Construct the largest independent processing services company with strength in vertical markets, integrated systems and software products.
3. Construct the largest independent professional services company, supported by network and software product divisions.
4. Construct the largest independent multiservice vendor servicing the banking/finance sector markets.
5. Create the largest small business service vendor, with emphasis on client base, distribution network strength, integrated systems, and software products.
6. Answer the question, "How big a company can be constructed, assuming anyone is acquirable, in the shortest time?"

A. SCENARIO I

1. OBJECTIVE

- Construct the largest independent data base processing service company serving all major information services growth markets with a balance of RCS/network services, systems software products, integrated systems, and professional services; see Exhibits VI-1, VI-2, and VI-3 for companies chosen and sequence of events.

2. PHASE I

- Purchase a network along with remote computing facilities serving the high growth industry sectors, preferably discrete manufacturing, federal and/or state/local government, and banking/finance.

CANDIDATES

Ideal: Tymshare: 1986 revenue \$914 million (U.S. information services revenue \$478 million, international \$48 million)
Alternate: Comshare: 1986 revenue \$246 million (U.S. information services revenue \$162 million, international \$84 million)

Target completion: fourth quarter, 1982

3. PHASE II (In parallel with Phase I)

- Purchase at least two personal computer software companies serving systems implementation markets as well as applications software markets.

EXHIBIT VI-1

SCENARIO I: ACQUISITION OPTIONS

1986 FORECASTED REVENUES

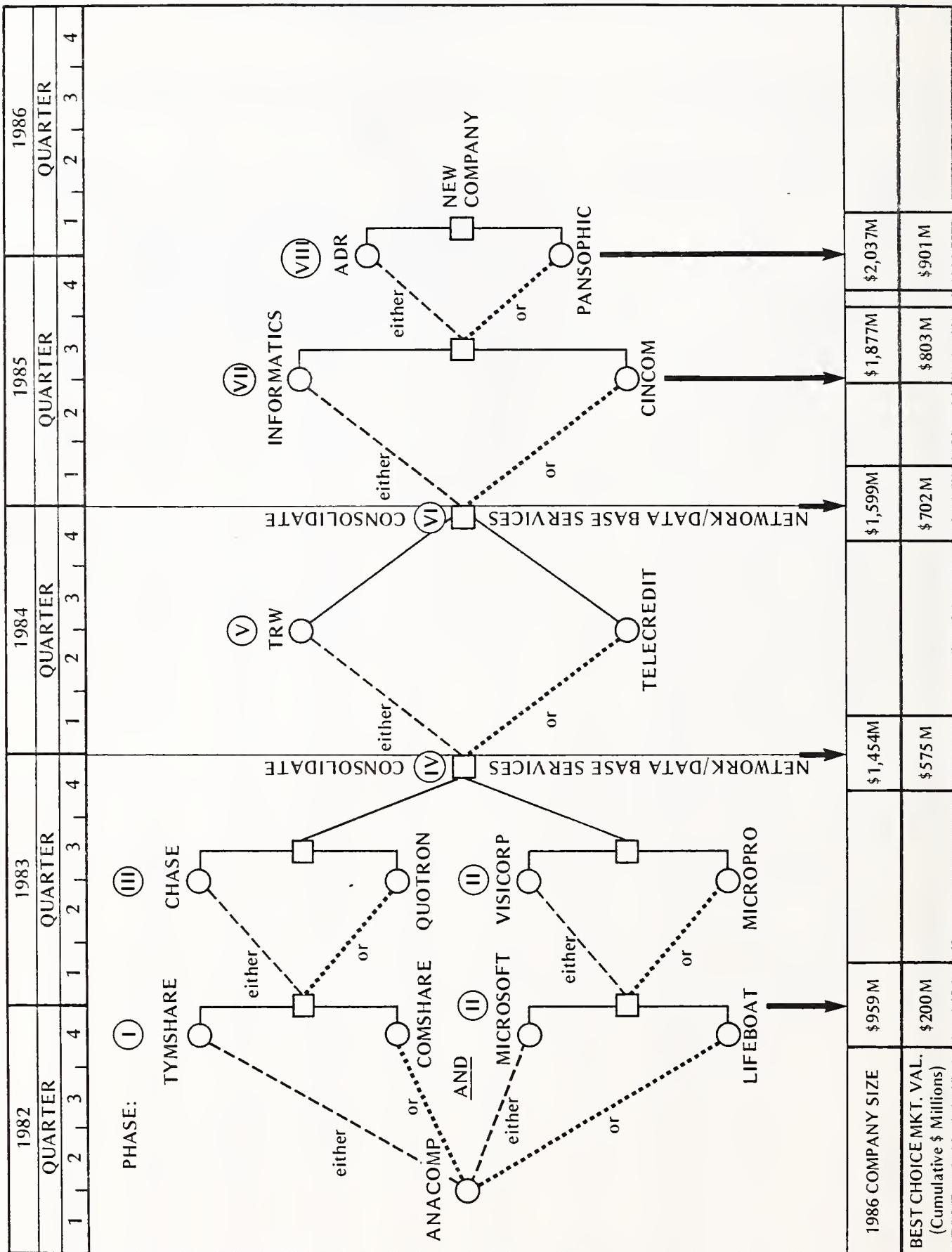
(\$ millions)

EXHIBIT VI-2

**PERSONAL COMPUTER SOFTWARE
ACQUISITION OPTIONS
1986 FORECASTED REVENUES
(\$ millions)**

EXHIBIT VI-3

SCENARIO I



CANDIDATES

Ideal: 1. Microsoft: 1986 revenues \$100 million
 2. Visicorp: 1986 revenues \$90 million

Alternates: 1. Lifeboat: 1986 revenue \$100 million
 2. Micropro: 1986 revenues \$75 million

Target completion: 1. fourth quarter 1982, 2. second quarter 1983

4. PHASE III

- Acquire data base driven company in banking/financial sector to leverage the network already purchased.

CANDIDATES

Ideal: Chase: 1986 revenue \$531 million (U.S. data base \$410 million, \$21 million international)

Alternate: Quotron: 1986 revenue \$294 million (U.S. data base \$271 million, no international)

Target completion: second quarter 1983

5. PHASE IV

- Consolidate data base services with network, eliminate equipment and staff overlaps, and expand data base and network product distribution.

Target completion: fourth quarter 1983

6. PHASE V

- Acquire second data base driven company in banking/financial sector.

CANDIDATES

Ideal: TRW Information Services: 1986 revenue \$179 million (All U.S., no international)

Alternate: Telecredit: 1986 revenue \$112 million (All U.S., no international)

Target completion: second quarter 1984

7. PHASE VI

- Consolidate data base services, eliminate equipment and staff duplication, and expand data base product distribution.

Target completion: fourth quarter 1984

8. PHASE VII

- Acquire a strong systems software business with either professional services capability or other compatible business division.

CANDIDATES

Ideal: Informatics: 1986 revenue \$364 million, with \$142 million processing services, \$41 million professional services

Alternate: Cincom: 1986 revenue \$190 million, with \$105 million in international markets

Target completion: second quarter 1985

9. PHASE VIII

- Acquire second software group with systems software products and application software and/or professional services element.

CANDIDATES

Ideal: ADR: 1986 revenues \$186 million, with \$111 million software products, \$67 million international

Alternate: Pansophic: 1986 revenues \$135 million, with \$88 million software products, \$47 million international

Target completion: fourth quarter 1985

- At this point the company has 1986 projected information services revenues of approximately \$2,037 million (averaging all of the possible candidates), divided into the following service categories (including Anacomp):

	<u>1986 Revenues (\$ millions)</u>	<u>Percent</u>
- Processing services (data base)	\$ 413	20.3%
- Processing services (other)	544	26.7
- Software products	442	21.7
- Integrated systems	72	3.5
- Professional services	81	4.0
- International	230	11.3
- Other	<u>255</u>	<u>12.5</u>
TOTAL COMPANY	\$2,037	100%

- Any shortfall in targeted revenues (e.g., if the smallest company option always occurs) could be made up by the addition of a large widely based group like Wily (UCC).

B. SCENARIO II

1. OBJECTIVE

- Construct the largest independent processing services company with strength in vertical market processing, integrated systems, and software products with supportive professional services capability; see Exhibits VI-4, VI-5, and VI-6 for companies chosen and sequence of events.

2. PHASE I

- Purchase a network along with remote computing facilities serving the high growth industry sectors, discrete manufacturing, federal and/or state and local government, and banking/finance.

CANDIDATES (as for Scenario I)

Ideal: Tymshare: 1986 revenue \$914 million

Alternate: Comshare: 1986 revenue \$246 million

Target Completion: fourth quarter, 1982

3. PHASE II

- Purchase at least two personal computer software companies serving systems implementation markets as well as applications software markets.

CANDIDATES (as for Scenario I)

Ideal: 1. Microsoft: 1986 revenues \$100 million
2. Visicorp: 1986 revenues \$90 million

Alternate: 1. Lifeboat: 1986 revenues \$100 million
2. Micropro: 1986 revenues \$75 million

EXHIBIT VI-4

SCENARIO II: ACQUISITION OPTIONS

1986 FORECASTED REVENUES

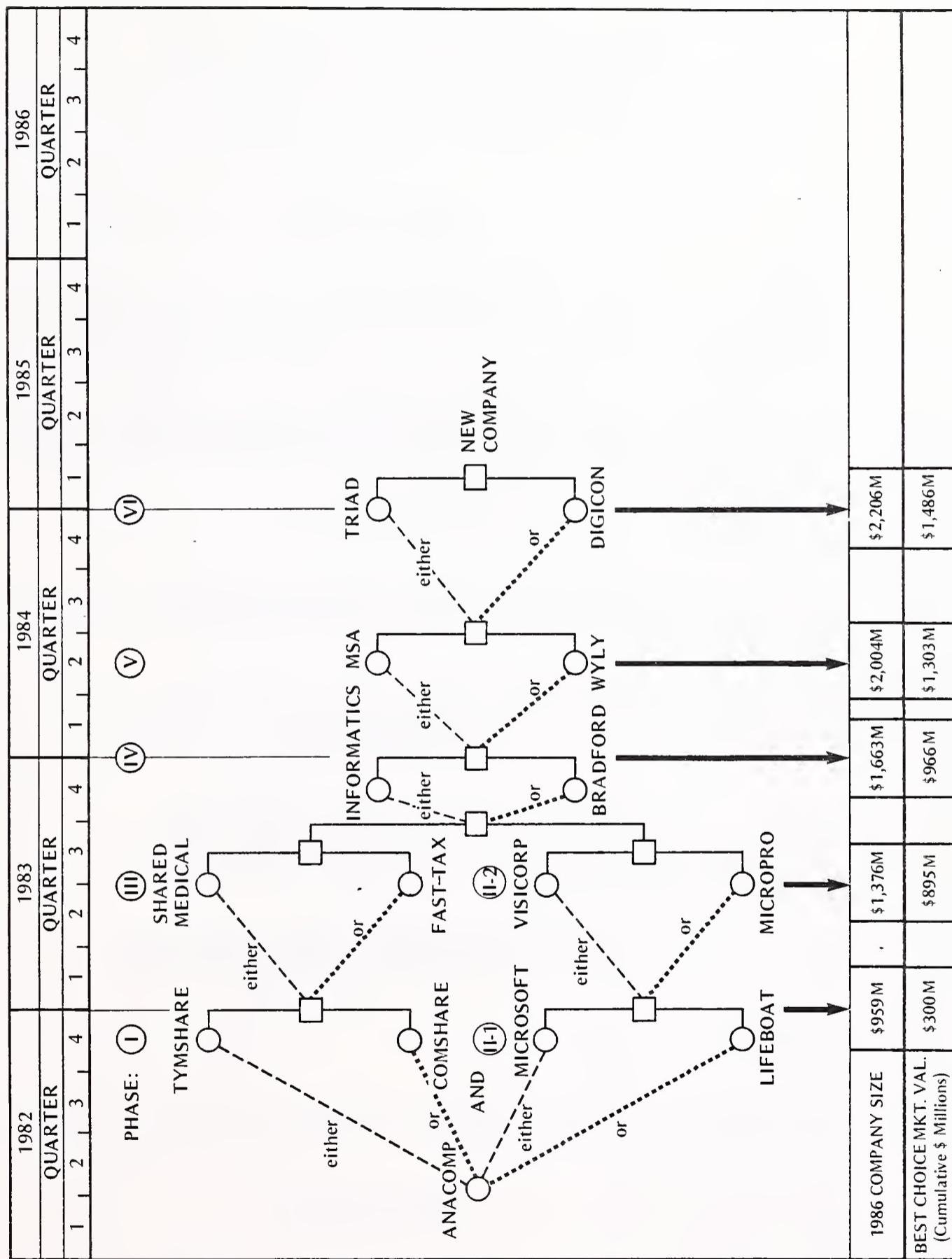
(\$ millions)

EXHIBIT VI-5

**PERSONAL COMPUTER SOFTWARE
ACQUISITION OPTIONS
1986 FORECASTED REVENUES
(\$ millions)**

EXHIBIT VI-6

SCENARIO II



Target completion: 1. fourth quarter 1982, 2. second quarter 1983

4. PHASE III

- Acquire a vertical market processing vendor to expand RCS revenues, broaden market base, and leverage to network already purchased.

CANDIDATES

Ideal: Shared Medical Systems: 1986 revenues \$439 million

Alternate: Fast-Tax: 1986 revenues \$231 million

Target completion: second quarter 1983

5. PHASE IV

- Expand processing services base, add software products and supporting professional services.

CANDIDATES

Ideal: Informatics: 1986 revenues \$364 million

Alternate: Bradford: 1986 revenues \$209 million

Target completion: fourth quarter 1983

6. PHASE V

- Add further to software products revenues and expand international base.

CANDIDATES

Ideal: MSA: 1986 revenues \$387 million of which \$140 million in international, \$247 software

Alternate: Wyly: 1986 revenues \$295 million, of which \$79 million international and \$71 million in software products

Target completion: second quarter 1984

7. PHASE VI

- Expand integrated systems revenue base.

CANDIDATES

Ideal: Triad: 1986 revenues \$187 million

Alternate: Digicon: 1986 revenues \$216 million of which \$82 million processing, \$90 million integrated systems, and \$36 million international

Target completion: fourth quarter 1984

- At this stage the company has 1986 projected revenue of approximately \$2.2 billion (averaging all of the possible candidates), with revenues spread as follows:

	1986 Revenues (\$ millions)	Percent
- Processing services (data base)	\$ 30	1.4%
- Processing services (other)	905	42.2
- Software products	463	22.5
- Integrated systems	249	11.1
- Professional services	60	2.8
- International	238	9.0
- Other	<u>261</u>	<u>11.0</u>
TOTAL COMPANY	\$2,206	100%

C. SCENARIO III

I. OBJECTIVE

- Construct the largest independent processing/professional services company, supported by a network and software products division, serving all major growth industry sectors; see Exhibits VI-7, VI-8, VI-9, and VI-10 for companies chosen and sequence of events.
- There are two alternatives to this objective, hinging around whether it is possible to acquire CSC. If yes, the objective is attained, except for two further acquisitions. If no, the objective is attainable only through a long chain of acquisitions.

OPTION CSC

- The acquisition of CSC brings the following 1986 revenue distribution (\$ millions):

- Processing services (data base)	\$ 80
- Processing services (other)	500
- Integrated systems	20
- Professional services	680
- International	<u>260</u>
TOTAL	\$1,540

- To this, the addition of a) two personal computer software companies (see Scenario I), and b) either Informatics or Wyly (UCC) completes the construc-

EXHIBIT VI-7

**SCENARIO III: ACQUISITION OPTIONS WITH CSC
1986 FORECASTED REVENUES
(\$ millions)**

EXHIBIT VI-8

SCENARIO III: ACQUISITION OPTIONS WITHOUT CSC
 1986 FORECASTED REVENUES
 (\$ millions)

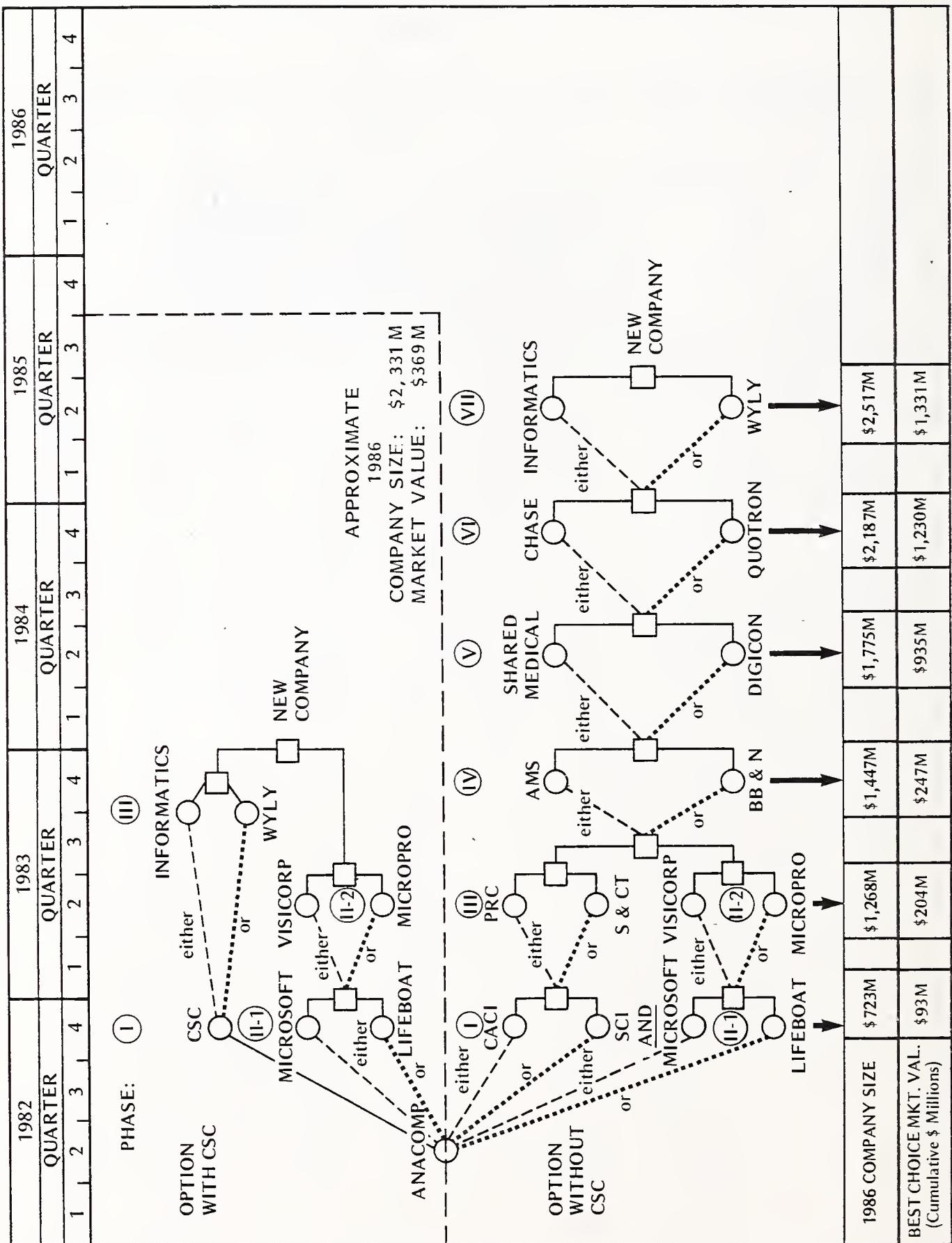
COMPANY	SEGMENT	BASE COMPANY								TOTAL
		PROCESSING SERVICES (DB)	PROCESSING SERVICES (OTHER)	SOFTWARE PRODUCTS	INTEGRATED SYSTEMS	PROFESSIONAL SERVICES	INTERNATIONAL	OTHER	ALTERNATES #1	
Anacomp	-	\$109	\$40	\$46	\$20	\$14	\$50	\$279	ALTERNATES #2	ALTERNATES #3
C.A.C.I.	-	-	-	-	335	55	-	\$390	ALTERNATES #4	ALTERNATES #5
SCI	-	-	-	25	274	-	-	\$299	ALTERNATES #6	BACKUPS
PRC	\$106	-	-	-	180	40	460	\$790		
S&CT	-	-	-	-	134	-	-	\$134		
AMS	-	70	5	9	123	2	-	\$209		
BBN	-	-	-	-	50	-	100	\$150		
Shared Medical	-	389	-	50	-	-	-	\$439		
Digicon	-	82	8	90	-	36	-	\$216		
Chase	210	240	9	9	42	21	-	\$531		
Quotron	271	-	-	-	4	-	19	\$294		
Informatics	-	142	121	-	41	60	-	\$364		
Wyly (UCC)	-	70	71	40	-	79	35	\$295		
MSA	-	-	247	-	-	140	-	\$387		
Kirchman	-	15	-	121	-	-	-	\$136		
CINCOM	-	-	85	-	-	105	-	\$190		
Pansophic	-	-	88	-	-	47	-	\$135		

EXHIBIT VI-9

**PERSONAL COMPUTER SOFTWARE
ACQUISITION OPTIONS
1986 FORECASTED REVENUES
(\$ millions)**

EXHIBIT VI-10

SCENARIO III



tion of a \$2,331 million company that is undisputed number one in professional services, with a very strong processing services market share, coupled with significant software products presence and 14% of revenues generated by international.

OPTION WITHOUT CSC

2. PHASE I

- Begin building professional services base with significant share of main professional services market (federal government).

CANDIDATES

Ideal: C.A.C.I.: 1986 revenues \$390 million, mainly in DOD, also DBMS and energy

Alternate: SCI: 1986 revenues \$299 also in federal government

Target completion: fourth quarter 1983

3. PHASE II

- Add at least two personal computer software companies (see Scenario I).

4. PHASE III

- Expand professional services base in government sector.

CANDIDATES

Ideal: PRC less architecture/engineering group: 1986 information services revenues \$330 million (total 1986, \$790 million)

Alternate: Systems and Computer Technology: 1986 revenues \$134 million

Target completion: second quarter 1983

5. PHASE IV

- Continue expanding professional services base in government sector.

CANDIDATES

Ideal: AMS: 1986 revenues \$209 million of which \$123 million in professional services

Alternate: BB&N: 1986 revenues \$50 million

Targeted completion: fourth quarter 1983

6. PHASE V

- Begin broadening processing base and integrated systems revenues from vertical markets.

CANDIDATES

Ideal: Shared Medical: 1986 revenues \$439 million

Alternate: Digicon: 1986 revenues \$216 million

Targeted Completion: second quarter 1984

7. PHASE VI

- Add data base processing in vertical markets, ideally banking/finance.

CANDIDATES

Ideal: Chase Ec./IDC: 1986 revenues \$531 million of which \$210 million in DB

Alternate: Quotron: 1986 revenues \$294 million of which \$271 million in DB

Target Completion: fourth quarter 1984

8. PHASE VII

- Broaden processing revenues and software products in commercial sector.

CANDIDATES

Ideal: Informatics: 1986 revenues \$364 million

Alternate: Wyly: 1986 revenues \$295 million

Target completion: second quarter 1985

- Software products and international revenues can be rounded out by the acquisition of one or more of the following companies:
- MSA (\$387 million).
- Kirchman (\$136 million).
- Cincom (\$190 million).
- Pansophic (\$135 million).

Target completion: first quarter 1986

- Even without the above companies, the company has projected 1986 revenues, at this stage, of \$2,517 million from the following services categories:

	<u>1986 Revenues</u> (\$ millions)	<u>Percent</u>
- Processing Services (data base)	\$ 294	11.7%
- Processing Services (other)	606	24.1
- Software Products	330	13.1
- Integrated Systems	158	6.3
- Professional Services	612	24.3
- International	171	6.8
- Other	<u>346</u>	<u>13.7</u>
TOTAL	<u>\$2,517</u>	<u>100%</u>

D. SCENARIO IV

1. OBJECTIVE

- Construct the largest U.S. independent multiservice information services vendor serving the banking/financial sector; see Exhibits VI-11 and VI-12 for companies chosen and sequence of events.

2. PHASE I

- Purchase a network with remote computing facilities already serving the banking and/or financial sector, with an international base, and data base processing as well as standard processing services.

CANDIDATES

Ideal: Tymshare: 1986 revenue \$914 million, with international revenues of \$48 million

Alternate: Chase Econometrics/IDC: 1986 revenues \$531 million with international revenues of \$21 million

Target completion: fourth quarter 1982

3. PHASE II

- Add financial sector depth with network based services to the securities industry.

EXHIBIT VI-11

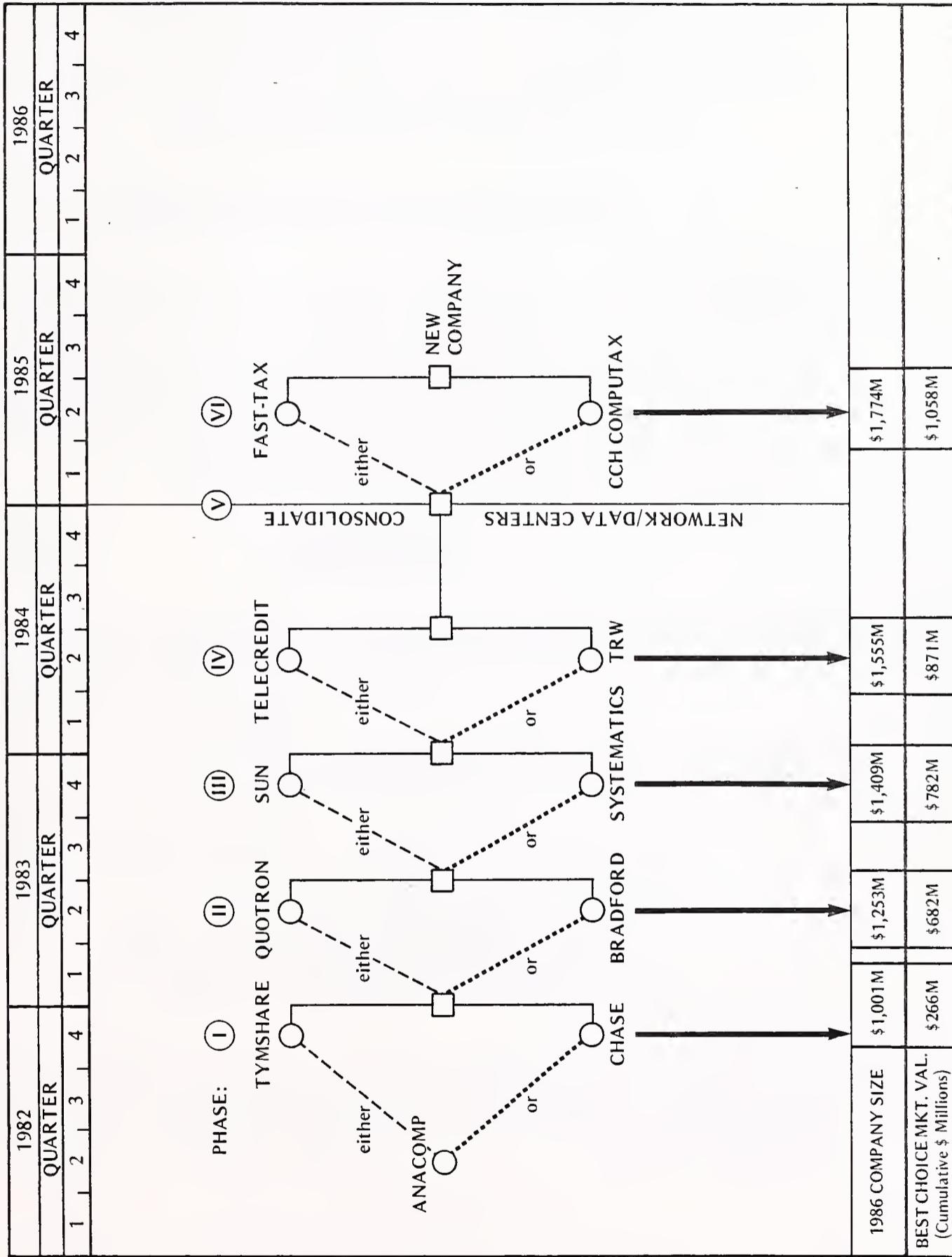
SCENARIO IV: ACQUISITION OPTIONS

1986 FORECASTED REVENUES

(\$ millions)

EXHIBIT VI-12

SCENARIO IV



CANDIDATES

Ideal: Quotron: 1986 revenues \$294 million, of which \$271 million in securities processing

Alternate: Bradford: 1986 revenues \$209 million, of which \$190 million in securities handling

Target completion: second quarter 1983

4. PHASE III

- Expand commercial bank services with further on-line processing services and software products, (e.g., large facilities management processing, trust services, etc.).

CANDIDATES

Ideal: Sun Information Services: 1986 revenues \$200 million of which \$138 million in processing and \$32 million in software products

Alternate: Systematics: 1986 revenues \$112 million of which \$110 million in processing and \$19 million in software products

Target completion: fourth quarter 1983

5. PHASE IV

- Add on-line consumer credit processing with data base services through a dedicated network.

CANDIDATES

Ideal: Telecredit: 1986 revenues \$112 million
Alternate: TRW Information Services: 1986 revenues \$179 million

Target completion: second quarter 1984

6. PHASE V

- Consolidate network, data center, and technical support divisions of company, eliminating any overlap of processing capacity, offices and network lines/nodes. Restructure organization accordingly.

Target completion: fourth quarter 1984

7. PHASE VI

- Add on-line tax processing services as consumer service, CPA/professional service, and corporate entity service.

CANDIDATES

Ideal: Fast-Tax: 1986 revenues \$231 million
Alternate: CCH Computax: 1986 revenues \$207 million

Target completion: second quarter 1985

- At this stage the company will have projected 1986 revenues of \$1.8 billion (average of all companies considered, including Anacomp), divided into the following information services:

		<u>1986 Revenues (\$ millions)</u>	<u>Percent</u>
-	Processing (data base)	\$ 408	23.0%
-	Processing (other)	832	46.9
-	Software products	87	4.9
-	Integrated systems	65	3.7
-	Professional services	72	4.1
-	International	56	3.2
-	Other	<u>254</u>	<u>14.2</u>
	TOTAL	\$1,774	100%

E. SCENARIO V

1. OBJECTIVE

- Construct the largest small business service vendor with emphasis on client base growth potential, distribution network strength, small business services, integrated systems, and software products; see Exhibits VI-13, VI-14, and VI-15 for companies chosen and sequence of events.

2. PHASE I

- Obtain a client base of 20,000 plus small businesses that have not automated or are using simple data handling methods, along with a distribution network to handle small business services and products.

CANDIDATES

Ideal: Reynolds and Reynolds: 1986 revenues \$466 million

Alternate: Safeguard Business Systems: 1986 revenues \$338 million

Target completion: fourth quarter 1982

3. PHASE II (IN PARALLEL WITH PHASE I)

- Purchase at least two personal computer software companies serving systems implementation markets as well as applications software markets.

CANDIDATES

Ideal: 1. Microsoft: 1986 revenues \$100 million
2. Visicorp: 1986 revenues \$90 million

Alternate: 1. Lifeboat: 1986 revenues \$100 million
2. Micropro: 1986 revenues \$75 million

EXHIBIT VI-13

SCENARIO V:

1986 FORECASTED REVENUES

(\$ millions)

EXHIBIT VI-14

**PERSONAL COMPUTER SOFTWARE
ACQUISITION OPTIONS
1986 FORECASTED REVENUES
(\$ millions)**

EXHIBIT VI-15

SCENARIO V

Target completion: 1. fourth quarter 1982, 2. second quarter 1983

4. PHASE III

- Acquire a remote computing services network, expand integrated systems capability, and add software products division.

CANDIDATES

Ideal: Informatics: 1986 revenues \$364 million

Alternate: Wyly (UCC): 1986 revenues \$295

Target completion: second quarter 1983

5. PHASE IV

- Add accounting firms and tax form processing business.

CANDIDATES

Ideal: Fast-Tax: 1986 revenues \$231 million

Alternate: CCH Computax: 1986 revenues \$207 million

Target completion: fourth quarter 1983

6. PHASE V

- At this point the company has a very large client base of small businesses, many not yet automated, some using low volume RCS. Telemarketing channels can be opened up with the acquisition of direct mail processing companies such as ADVO Systems (and other regional direct mail companies of the same size). Integrated system capabilities, at the small business system end ("Main St. USA businesses"), can be expanded by acquiring companies like Triad, and a large user base of applications software at the medium company

size and small business system (microcomputer) level can be acquired through a company such as Management Science America.

NET IMPACT

- Four regional direct mail companies such as ADVO: total 1986 revenues \$300 million.
- One large integrated system vendor to small businesses, such as Triad: 1986 revenues \$187 million.
- One large applications software company such as MSA with small business (microcomputer) and medium size company products: 1986 revenues \$387 million.

Total Phase V Revenue Addition, 1986, \$860 Million

Target completion: fourth quarter 1984

- The company's total projected 1986 revenues would then be \$2.3 billion of which \$2 billion would be information services, divided into the following categories:

	<u>1986 Revenues (\$ millions)</u>	<u>Percent</u>
- Processing services (data base)	nil	-
- Processing services (other)	\$ 846	37.0%
- Software Products	566	24.8
- Integrated Systems	303	13.3
- Professional services	41	1.8
- International	243	10.6
- Other	<u>287</u>	<u>12.5</u>
TOTAL	\$2,286	100%

F. SCENARIO VI

1. OBJECTIVE

- To answer the question, "What is the largest multiservice company that can be constructed by acquisition, in the shortest timeframe?"; see Exhibits VI-16 and VI-17 for companies chosen and sequence of events.

2. PHASE I

- Purchase the largest possible processing services base.

CANDIDATES

Ideal: ADP: 1986 processing services \$1,330 million, total 1986 revenues \$1,620 million, all information services related

Alternate: EDS: 1986 processing revenues \$1,023 million, total 1986 revenues \$1,410

Possible target completion, fourth quarter 1982

3. PHASE II

- Increase network services, professional services, and international coverage.

CANDIDATES

Ideal: CSC: 1986 revenues \$1,540 million of which \$260 in international

Alternate: Tymshare: 1986 revenues \$914 million of which \$148 million in international

Possible target completion: fourth quarter 1983

EXHIBIT VI-16

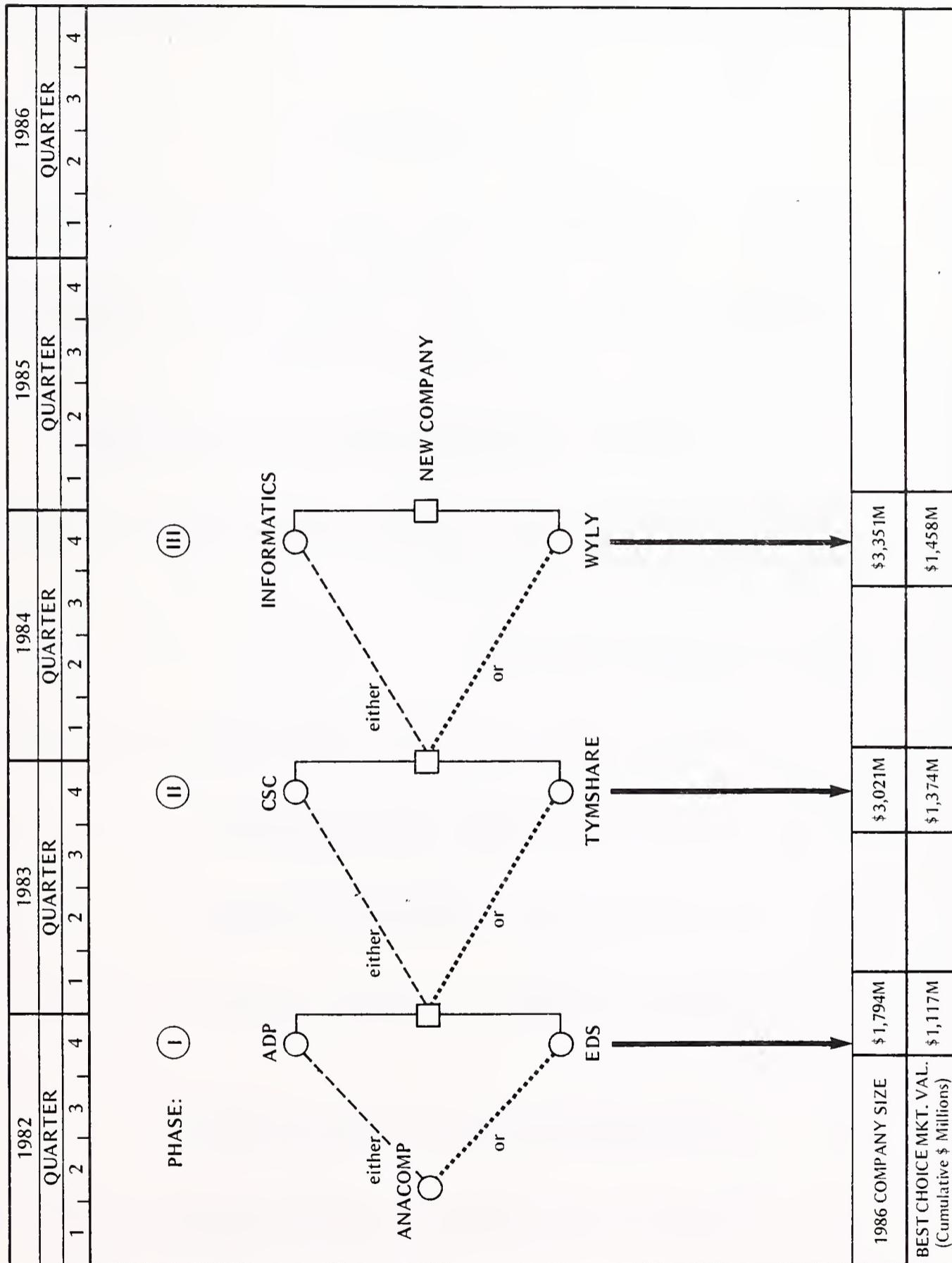
SCENARIO VI: ACQUISITION OPTIONS

1986 FORECASTED REVENUES

(\$ millions)

EXHIBIT VI-17

SCENARIO VI



4. PHASE III

- Expand processing services even further, and add strength in software products.

CANDIDATES

Ideal: Informatics: 1986 revenues \$364 million of which \$158 million in software products
Alternate: Wyly: 1986 revenues \$295 million of which \$71 million in software products

Possible target completion: fourth quarter 1984

- Additional software products (application) could be added by the acquisition of MSA, 1986 revenues \$387 million.
- Such a company would have:
 - Dominant position in remote computing and other processing services.
 - A network comparable to that of GEISCO.
 - Dominant strength in professional services.
 - Dominant strength in federal government, banking, and insurance sectors.
 - Good coverage of software products market.
 - Excellent revenue base from international operations.
 - 1986 revenues of \$3.4 billion.
 - U.S. market share of 5.8%.

- This is obviously stretching the imagination far beyond normal expectations. Even so, such a company would still be less than half the size of IBM's information services.

VII COMPANY ANALYSES

COMPANY NAME: COMPUTER SCIENCES CORPORATION

HEADQUARTERS: 650 North Sepulveda Blvd.
El Segundo, CA 90245

STATUS: Public Company, NYSE

EMPLOYEES: 14,700

PRESIDENT: William R. Hoover

FISCAL YEAR ENDS: 4/3/81

TELEPHONE: (213) 615-0311

HISTORY AND GROWTH

- Founded in 1959 to provide consulting services, and to design/implement operating systems, compilers, and other systems software, CSC has expanded to include systems development, engineering, facilities management, turnkey computer-communications systems, communications engineering, batch processing, and network services.
- Revenue growth has been at a AAGR of 20% over the 1976-1980 period, and 32.6% from 1980 to 1981.
- The possibility exists of CSC being awarded the U.S. Army's VIABLE project (\$1 billion contract), which would have significant short- and long-term implications for CSC as a company.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$ 220	\$ 235	\$ 276	\$ 342	\$ 453
Percent Growth	24%	7%	18%	24%	32%
Net Income (\$ millions)*	\$ 7.2	\$ 11.6	\$ 14.0	\$ 14.2	\$ 22.7
Percent Growth	98%	61%	20%	1%	60%

* = to nearest \$100,000

SERVICE TYPE AND DELIVERY MODE

	<u>Service Type</u>	<u>Percent</u>	<u>Revenue Value 1981 (\$ millions)</u>
●	Data Services	25%	\$152
	- INFONET		107
	- Business Services		38
	- Paid Prescriptions		7
●	Facilities Management	27	162
●	Systems Development	<u>48</u>	<u>288</u>
	TOTAL	100%	\$602

INDUSTRY SECTORS SERVED

-	Federal Government	57%
-	Manufacturing	13
-	Services	9
-	State and Local Government	8
-	Banking and Finance	3
-	Utilities	2
-	Medical	2
-	Retail	2
-	Wholesale	2
-	Transportation	1
-	Insurance	1

INTERNATIONAL MARKETS SERVED

- International operations are principally divided between systems design and consulting services (through CSC's Computer Sciences Europe subsidiary) and the remote computing services of INFONET (European INFONET services also handled by Computer Sciences Europe). INFONET services have been expanded, through licenses with local companies, to Japan, Singapore, and

Taiwan. In fiscal 1981, international operations provided 15% of the revenue and 20% of the operating income, from operations in 57 countries.

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	1977 (\$ millions)	1981 (\$ millions)	AAGR (percent)
• INFONET	\$ 57.7	\$107	17%
• Other Processing Services	1.3	45	140
• Facilities Management	44.0	162	38
• Professional Services	<u>132.0</u>	<u>287</u>	<u>26</u>
TOTAL	\$235	\$601	26%

PROJECTED GROWTH BY SEGMENT

<u>Segment</u>	AAGR (percent)	\$ millions/Fiscal Year					
		1981	1982	1983	1984	1985	1986
• INFONET	10%	\$107	\$110	\$120	\$138	\$158	\$182
• Other Processing Services	20	45	70	84	100	120	145
• Facilities Management	22 35*	162	197	241	194	358	438 726*
• Professional Services	22	<u>287</u>	<u>350</u>	<u>427</u>	<u>521</u>	<u>635</u>	<u>775</u>
TOTAL COMPANY SIZE	-	\$601	\$727	\$872	\$1,053	\$1,271	\$1,540 \$1,828*

* Top limit

1986 MARKET SHARE

- Processing Services 1.9%; Facilities Management 14%; Professional Services 4.3%

POTENTIAL IMPACT OF ECONOMY

- A large part (57%) of CSC's revenue comes from the federal government in Defense and Applied Technology activities which are largely unaffected by economy downturns. The same cannot be said of INFONET and other Data Services activities.

- Therefore, some attenuation of CSC's growth in processing services and facilities management is expected. Also, CSC appears to have chosen the wrong time to launch new turnkey system products.

POTENTIAL IMPACT OF COMPETITION

- The contract services group has formidable opposition in the marketplace in the shape of TRW, Hughes Aircraft, IBM Federal, and Raytheon. In their medicaid and government facilities management contracts the principal competition is EDS.
- Similarly, the Data Services segment competes with ADP, Service Bureau, GEISCO, and Tymshare. Competitive moves can therefore impact CSC strongly in all of their major markets.

POTENTIAL IMPACT OF TECHNOLOGY

- CSC is at the forefront of technology developments and well able to predict the likely impact of each new technology. Additionally, CSC is essentially a "people resource" company, and the demand for specialist skills has already outstripped available resources. No impact is foreseen.

SUMMARY

- CSC needs to maintain its R&D investment in INFONET to support continued growth of that market and has a difficult task in its attempt to develop a turnkey system division.
- CSC could be significantly impacted by the award of the Army's \$1 billion VIABLE contract (over a ten-year period).
- CSC's strength is in its government based contract services. It has been a poor performer in developing commercial products and services, (e.g., Computer Sciences Institute, computicket, banking software packages, and now problems with Itel acquisitions).

COMPANY NAME: AUTOMATIC DATA PROCESSING, INC.

HEADQUARTERS: 405, Route 3
Clifton, NJ 07015

STATUS: Public Company, NYSE

EMPLOYEES: 12,500

PRESIDENT: Josh S. Weston

FISCAL YEAR ENDS: 6/30

TELEPHONE: (201) 472-1000

HISTORY AND GROWTH

- Formed in 1949 as Automatic Payrolls Inc., ADP ran a payroll service on unit record equipment until 1961 when it computerized operations and went public. An ambitious organization program brought 75 companies (approx.) into the company, and new business areas such as remote computing, an international network, operations in finance/banking, and services to automotive dealers. Payroll and accounting still provide the major source of ADP's revenues, however.
- Growth has been at an almost constant 24%.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$ 195	\$ 241	\$ 296	\$ 369	\$ 455
Percent Growth	-	24%	23%	25%	23%
Net Income (\$ millions)*	\$ 19	\$ 23.4	\$ 27.7	\$ 33.5	\$ 39.9
Percent Growth	-	23%	19%	21%	19%

* = to nearest \$100,000

SERVICE TYPE AND DELIVERY MODE

- ADP's Network Service group is the result of acquiring Cyphernetics, First Data Corp., Time Sharing Ltd., and Information Sciences. At the time of acquisition, combined revenues were \$30 million. In 1980, they were \$68 million, 17% up on 1979. Sixty-five percent of revenues are from interactive processing and 35% from remote batch, on-site, and cash management

services. The latter is a fast growing segment, with 45 banks handling deposits of \$2 billion per day.

- Commercial Services has always supplied more than 50% of ADP's revenue. Services include Payroll, A/R, A/P, financial statement, tax return, and unemployment insurance handling.
- Financial Services contribute 10% of revenues from securities processing, interest rate futures trading, thrift institutions, and banking services.
- ADP's Special Services produced 20% of 1980 revenues, from the dealer services division, collision estimating, pension services, and FASTRENTS.

INDUSTRY SECTORS SERVED

- The principal industry sectors served by ADP are:
 - Manufacturing (discrete and process).
 - Banking and finance.
 - Distribution (wholesale and retail).
 - Utilities.
 - Medical/hospital.
 - Government.

INTERNATIONAL MARKETS SERVED

- In addition to the 45 sales offices in the U.S., ADP has 25 offices abroad, including London, Rotterdam, Paris, Sao Paulo, Toronto, Montreal, Vancouver and Milan. International operations contribute 9% of ADP's revenue, of which 90% is from Western Europe. Almost all of these revenues are from remote computing services with the exception of a batch services operation in Rotterdam.

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	1979 (\$ millions)	1980 (\$ millions)	AAGR (percent)
- Commercial Services	\$193	\$246	27%
- Network Services	58	68	17
- Financial Services	37	47	27
- Special Industries	<u>77</u>	<u>90</u>	<u>17</u>
TOTAL	\$365	\$451	24%

PROJECTED GROWTH BY SEGMENT

										\$ millions/Fiscal Year
		AAGR (percent)	1981	1982	1983	1984	1985	1986		
•	Commercial Services	27%	\$301	\$382	\$485	\$ 616	\$ 783	\$ 994		
•	Network Services	17	84	98	115	135	157	184		
•	Financial Services	25	73	91	114	143	178	223		
•	Special Industries	17	100	117	137	160	187	219		
	TOTAL COMPANY SIZE	23%	\$558	\$688	\$851	\$1,054	\$1,305	\$1,620		

1986 MARKET SHARE

- Processing services market: 8.9%.

POTENTIAL IMPACT OF ECONOMY

- ADP's constant search for compatible acquisition candidates has yielded a regular increase of 24% in revenue independent of any economy fluctuations. There is every reason to expect this pattern to continue, since tight market conditions are an incentive for some of the reluctant acquisition candidates to be more reasonable in their expectations.

POTENTIAL IMPACT OF COMPETITION

- ADP is the market leader in its field with excellent management, technical and sales teams. It will be extremely hard to dislodge ADP from the top position. No competitive impact foreseen.

POTENTIAL IMPACT OF TECHNOLOGY

- ADP has been quick to adapt to changes in technology, particularly changes in service delivery mode (e.g., on-site hardware services). The company has the means to achieve such adaptations as required. No impact foreseen.

SUMMARY

- ADP will continue to be the processing services leader over the forecast period and act as the bellwether for its market.
- The automotive services growth is likely to moderate substantially over the forecast period but this will be offset by the growth in their new Collision Data service.

COMPANY NAME: ELECTRONIC DATA SYSTEMS CORPORATION

HEADQUARTERS: 7171 Forest Lane
Dallas, TX 75230

STATUS: Public Company, NYSE

EMPLOYEES: 11,764

PRESIDENT: Morton Meyerson

FISCAL YEAR ENDS: 6/30/81

TELEPHONE: (214) 661-6000

HISTORY AND GROWTH

- Founded in 1962, EDS is the leading supplier of facilities management services to insurance companies, government funded health insurance, banking, and manufacturing. It is also a leading contender in government facilities management. Revenue growth has been at an AAGR of 28% and net income at a rate of 21% (until 1981 when it rose 31%). EDS has made five acquisitions in the last two years in minicomputer related markets (banking software, hospital management systems, system manufacturer) and in credit union processing services. The most recent (3/82) was Data Processing of the South, N.C.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$ 133	\$ 164	\$ 218	\$ 274	\$ 375
Percent Growth	7%	23%	33%	26%	37%
Net Income (\$ millions)*	\$ 13.6	\$ 16.4	\$ 19.7	\$ 23.7	\$ 28.9
Percent Growth	(7%)	21%	20%	21%	22%

* = to nearest \$100,000

SERVICE TYPE AND DELIVERY MODE

- The Insurance Group, with revenues of \$218 million in 1981, provides facilities management, systems installation, consulting, and turnkey systems to commercial insurance clients, Blue Cross/Blue Shield organizations in 11 states, Medicaid/Medicare to state and local governments, and processing services to hospitals, nursing homes, and other health care groups.

- The Information Technology Group, with revenues of \$100 million in 1981, provides the same FM, consulting, turnkey and processing services, plus engineering service to defense and non-defense federal agencies. EDS World is a division of this group.
- The Commercial Systems Group, with revenues of \$122.7 million in 1981, provides the same range of services to manufacturing, petroleum, transportation, distribution, and travel sectors. Processing services to the financial sector are also provided.

INDUSTRY SECTORS SERVED

	<u>Percent</u>	<u>\$ millions, 1981</u>
• Insurance	48%	\$218.3
• Banking and Thrift	13	59.1
• Industrials	7	31.8
• Credit Unions	3	15.0
• Airline Tickets	2	7.7
• Commercial Business	2	9.1
• Government Services	18	81.8
• International	4	18.2
• (Investments and other)	3	13.6

INTERNATIONAL MARKETS SERVED

- EDS World offers services to government and commercial clients in the U.K., Kuwait, Malaysia, Mexico, the Netherlands, Saudi Arabia, and Singapore. FY 1981 revenues are estimated at \$18.2 million or 4% of total revenues. EDS frequently operates in joint venture with local companies. The main services offered are in the areas of social security, government, private banking, health care, social welfare, retailing, social insurance, airport administration, and meteorology.

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	<u>1976 (\$ millions)</u>	<u>1980* (\$ millions)</u>	<u>AAGR (percent)</u>
● Processing Services	-	\$40	N/A
● Turnkey Systems	-	2.0	N/A
● Facilities Management	\$125	248.5	24%
● Software Products	-	0.5	N/A
● Professional Services	-	64	N/A
● International	5	14	30
● Other, including interest	<u>3</u>	<u>6</u>	<u>20</u>
TOTAL	\$133	\$375	30%

* Estimated

PROJECTED GROWTH BY SEGMENT

<u>Segment</u>	<u>AAGR (percent)</u>	<u>\$ millions/Fiscal Year</u>					
		<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
● Credit Union Processing Services	25%	\$ 15.0	\$ 26.0	\$ 29.9	\$ 34.4	\$ 39.5	\$ 45.0
● Turnkey Systems	15	4.0	4.6	5.3	6.1	7.0	8.0
● Processing Facilities Management	25	320	400	500	625	781	971
● Software Products	30	1.8	2.3	3.0	3.9	5.1	6.5
● Professional Services	27 37*	82.0	104	132	168	213	274
● International	30	18.2	23.6	30.8	39.9	52.0	67.0
● Other including interest	<u>20</u>	<u>14.0</u>	<u>16.8</u>	<u>20.2</u>	<u>24.2</u>	<u>29.0</u>	<u>34.0</u>
TOTAL COMPANY SIZE	25% 28*	\$455	\$577	\$721	\$901	\$1,126	\$1,410 \$1,540

* Top limit

1986 MARKET SHARE

- Processing Services less than 1%; turnkey less than 1%; FM Processing 152%; all others less than 1%.

POTENTIAL IMPACT OF ECONOMY

- Much of EDS's business is multi-year contracts (FM, Government, Medicaid/Medicare, Blue Shield) and thus not susceptible to economy swings. Little impact is foreseen.

POTENTIAL IMPACT OF COMPETITION

- Major competitors are:
 - Insurance Claims Processing: Computer Sciences, The Computer Company, MCAUTO, and Systems Development Corporation.
 - Hospital Systems: Shared Medical MCAUTO, HBO, and Technicon.
 - Government Systems: PRC, CSC, and Systems Development.
 - Banking Services: ADP and Systematics.
 - Credit Unions: Service Bureau Company and Citicorp.

POTENTIAL IMPACT OF TECHNOLOGY

- The business served by EDS and the services offered by EDS are not subject to sudden technology changes. EDS is fully capable of responding to developments as they occur. No major impact is foreseen.

SUMMARY

- Continual strong growth is expected over the forecast period with an unpredictable impact of the U.S. Army's \$1 billion VIABLE contract for which EDS has won a demonstration project contract. If this is awarded the revenue implications are enormous for EDS (\$1 billion over 10 years or \$100 million per annum - 22% of 1981 total revenue).

COMPANY NAME: GENERAL ELECTRIC INFORMATION SERVICES CO.

HEADQUARTERS: 401 North Washington Street
Rockville, MD 20850

STATUS: Subsidiary of General Electric **EMPLOYEES:** 10,000
PRESIDENT: Gregory J. Liemandt **FISCAL YEAR ENDS:** 12/31
TELEPHONE: (301) 340-4000

HISTORY AND GROWTH

- GE produced the first commercially available timesharing service in 1965 with the Mark I service. Mark II service was provided to 20 metropolitan areas in 1968, and Mark III, combining interactive processing with remote batch processing, in 1972. In 1978, the Distributed Data Processing Service, using user satellite processors with local processing capabilities as access points to the network, was announced by GE, using TI990 minicomputers and 774 intelligent terminals.
- Since inception, GEISCO's revenues have grown to an estimated 1980 total of \$390 million, of which \$42.9 million is captive revenue from the parent. Acquisitions are now making their contribution to growth. 1979 (Mitol, Enercom) and in 1980 (Lambda Technology).

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>ESTIMATES</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$162	\$205	\$256		\$320	\$390
Percent Growth	-	26.5%	24.9%		25%	21.9%
Net Income (\$ millions)*		-----	NOT AVAILABLE	-----	-----	-----
Percent Growth						

* = to nearest \$100,000

SERVICE TYPE AND DELIVERY MODE

- The Mark III service consists of five major elements:

- Foreground Service (interactive processing on Honeywell computers).
- Background Service (remote batch processing on Honeywell computer).
- Distributed Data Processing services on intelligent TI terminals and minicomputers.
- Mark 3000 Service (remote batch processing on IBM mainframes).
- Professional Services (field technical assistance and contract programming).

INDUSTRY SECTORS SERVED

- GEISCO offers data base systems to commerce, federal agencies, industry and the securities/currency markets; financial planning tools to the business community; specialized services to engineering, utilities, construction and communications industries; and many simulation, modeling, statistical, and mathematical tools.

INTERNATIONAL MARKETS SERVED

- Nearly all of the free world including the Middle East, Far East, South America, Australia, New Zealand, Western Europe, and Canada.

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	<u>1979 (\$ millions)</u>	<u>1980 (\$ millions)</u>	<u>AAGR (percent)</u>
• International	\$110	\$145	31.8%
• Domestic U.S.	175	202	15.4
• Captive	35	42.9	22.6
• Other	<u>-</u>	<u>0.1</u>	<u>N/A</u>
TOTAL	\$320	\$390	21.9%

PROJECTED GROWTH BY SEGMENT

	<u>Segment</u>	<u>AAGR (percent)</u>	\$ millions/Fiscal Year					
•	International	32%	\$ 191	\$252	\$334	\$ 440	\$ 581	\$ 760
•	Domestic U.S.	24	272	337	418	519	643	790
•	Captive U.S.	20	52	62	74	89	107	125
	TOTAL COMPANY SIZE	26%	\$ 515	\$651	\$826	\$1,048	\$1,331	\$1,610

1986 MARKET SHARE

- RCS Processing: 9.4%; all others less than 1%.

POTENTIAL IMPACT OF ECONOMY

- GEISCO is currently serving 600 cities in 24 countries and is still expanding. This wide geographic spread, and the importance of the international contribution to the total revenue base means that GEISCO is somewhat cushioned from domestic and even Western world economy downturns. However, it is not expected that the overall growth rate (despite the introduction of fast growing acquisitions like Lambda Technology) will exceed 23% over the forecast period.

POTENTIAL IMPACT OF COMPETITION

- GEISCO has a far broader market and user base than any other remote computing services vendor, but is not immune to competition, particularly specialized services based on state of the art software. Nevertheless, no major impact is foreseen over the forecast period.

POTENTIAL IMPACT OF TECHNOLOGY

- GE has been quick to adapt to and adopt new technologies as they appear. New software technology is where the company needs to devote some attention if it is to maintain its current position. This is particularly relevant in the light of the need to switch the network hardware from Honeywell Series 60 at some point during the forecast period.

SUMMARY

- The development of GEISCO in the professional services market will be interesting to watch since the network output is a flow of new customized applications software capable of running on satellite hardware systems connected to the network. A market leader in the remote computing market for years to come, GEISCO is also becoming more aggressive in the software products field where, management believes, "the action will be in the next decade."

COMPANY NAME: TYMSHARE, INC.

HEADQUARTERS: 20705 Valley Green Drive
Cupertino, CA 95014

STATUS: Public Company, NYSE

EMPLOYEES: 3,600 (7/81)

PRESIDENT: Thomas J. O'Rourke

FISCAL YEAR ENDS: 12/31

TELEPHONE: (408) 446-6000

HISTORY AND GROWTH

- Since its founding in 1966, Tymshare has evolved from a remote computing services company specializing in scientific/engineering applications into a multiservice vendor providing data communications services, TK systems, software products, consulting, and third-party maintenance services, as well as processing services. Growth has been achieved primarily through acquisitions which have permitted entry into specialized, competitive markets such as medical systems, electronic funds transfer and other banking services, microwave transmission, and international markets such as the U.K., France, West Germany, and Japan.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$ 81.8	\$ 101.2	\$ 149.6	\$ 193.1	\$ 235.9
Percent Growth	27%	24%	48%	29%	22%
Net Income (\$ millions)*	\$ 6.7	\$ 8.0	\$ 10.6	\$ 14.6	\$ 18.7
Percent Growth	32%	19%	32%	38%	28%

* = to nearest \$100,000

SERVICE TYPE AND DELIVERY MODE

<u>Service Type</u>	<u>Percent</u>	<u>Revenue Value 1980 (\$ millions)</u>
- Processing services	70%	\$166
- Software products	2	5
- Professional services	2	5
- Turnkey systems	2	5
- H/W, maintenance, and rentals	5	12
- Maintenance and rentals	14	33
- International	<u>4</u>	<u>10</u>
	100%	\$236

INDUSTRY SECTORS SERVED

- Banking and Finance	25%
- Services	24
- Manufacturing	20
- Utilities	10
- Government	9
- Medical	8
- Distribution	<u>4</u>
	100%

INTERNATIONAL MARKETS SERVED

- Four percent of Tymshare's revenue is derived from international markets in Europe and Japan, through jointly owned operations in France (CEGOS, SLIGOS), the U.K. (Unilever), West Germany (Taylorix), Japan (Marubeni), and Belgium/Holland/Switzerland (also CEGOS). Of these markets, France would appear to be Tymshare's growth market due to good French PTT connections/agreements.

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	<u>1976 (\$ millions)</u>	<u>1980 (\$ millions)</u>	<u>AAGR (percent)</u>
- Processing Services	\$67.9	\$166	25%
- Software Products	1.6	5	33
- Professional Services	0.8	5	58
- Turnkey Systems	-	5	N/A
- Financial Sales and Rental	4.1	12	31
- Maintenance of Other including Tymnet	4.1	33	68
- International	<u>3.3</u>	<u>10</u>	<u>32</u>
TOTAL	\$81.8	\$236	30%

PROJECTED GROWTH BY SEGMENT

<u>Segment</u>	<u>AAGR (percent)</u>	<u>\$ millions/Fiscal Year</u>					
		<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
● Processing Services	17%	\$180	\$210	\$246	\$288	\$337	\$395
● Software Products	30	6	8	11	14	19	25
● Professional Services	35	7	9	12	16	22	29
● Turnkey Systems	35	6	9	12	17	22	29
● Terminal Sales and Rentals	30	19	25	32	42	54	71
● Maintenance and Tymnet	40	59	82	115	162	227	317
● International	<u>30</u>	<u>13</u>	<u>16</u>	<u>22</u>	<u>28</u>	<u>37</u>	<u>48</u>
TOTAL COMPANY SIZE	26%	\$290	\$359	\$450	\$567	\$718	\$914

1986 MARKET SHARE

- By 1986, Tymshare will have the following estimated U.S. market shares: Processing Services - 4.3%; Professional Services - 0.2%; Software Products - 0.2%; Data Network Services - 4.2%; all others - less than 1%.

POTENTIAL IMPACT OF ECONOMY

- Economic downturns will affect remote computing services and batch services which represent 70% of Tymshare's business, but will have a lesser effect on credit services, medical services, and data communications services, all of which are high growth markets. The manufacturing sector downturn is also of significance to Tymshare since it represents 20% of the clients.

POTENTIAL IMPACT OF COMPETITION

- Major competitors are:
 - Remote Computing: GEISCO, SBC (CDC), National CSS (D&B), ADP, CSC.
 - Credit Services: First Data, National Data, independent bank associations.
 - Medical Services: MCAUTO, Shared Medical, HBO & Co.
 - Accounting/Tax: CCH Computax, Fastax, Computer Sciences, Reynolds & Reynolds.
 - Data Communications: GTE and AT&T.

POTENTIAL IMPACT OF TECHNOLOGY

- Hardware technology innovations will affect Tymshare's turnkey system markets (2%), hardware markets (14%), and microwave business when this market begins its consolidation phase.
- Software technology innovations are much slower to develop but have a potentially far greater significance to Tymshare's business. The diversity of Tymshare's software products represents an R&D and maintenance load on the company, since they compete on so many different fronts.

SUMMARY

- Tymshare participates in markets characterized by high growth, consolidation of competition, powerful, financially solid competitors. All of Tymshare's competitors are big league companies with huge resources. In this perspective Tymshare looks vulnerable. However, Tymshare has managed to build strong positions in key market areas such as Data Network Services from its own resources.

COMPANY NAME: NCR CORPORATION
HEADQUARTERS: Data Services
 1700 S. Patterson Blvd.
 Dayton, OH 45479
STATUS: Public Company, NYSE **EMPLOYEES:** 67,000
PRESIDENT: C.E. Ekley Jr. **FISCAL YEAR ENDS:** 12/31
TELEPHONE: (513) 449-2000

HISTORY AND GROWTH

- Like all computer vendors, NCR originally offered services such as consulting, software, software support, etc. bundled into the cost of the hardware sold. The industry trend toward unbundling has led to the development of a whole range of services and software offerings. NCR's wholly owned subsidiary NCR Data Centers contributes the processing services part of the revenue, offering batch, remote computing, and COM services.

Note: The data that follows is INPUT's best estimate of revenues and activities, since NCR will not confirm the data. Use with caution.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$ 114	\$ 124	\$ 137	\$ 150	\$ 166
Percent Growth	-	9%	9.6%	9.7%	11%
Net Income	----- NOT AVAILABLE -----				
Percent Growth					

* = to nearest \$100,000

SERVICE TYPE AND DELIVERY MODE

- The data centers offer batch, interactive, and remote batch processing of U.S. thrift institution accounts (savings and loan, credit unions, mutual savings banks).
- COM services are also offered to retail and financial users.

- The larger data centers (83 in total) produce \$4 million of revenue, the smaller ones approximately \$0.5 million.

INDUSTRY SECTORS SERVED

- Retail/Distributors 45%
- Thrift 45%
- All other 10%

INTERNATIONAL MARKETS SERVED

- No data.

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	<u>1979 (\$ millions)</u>	<u>1980 (\$ millions)</u>	<u>AAGR (percent)</u>
Remote Computing	\$ 75	\$ 87	16%
Batch Processing	<u>75</u>	<u>79</u>	<u>5</u>
TOTAL	\$150	\$166	11%

PROJECTED GROWTH BY SEGMENT

<u>Segment</u>	<u>AAGR (percent)</u>	<u>\$ millions/Fiscal Year</u>					
		<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
Remote Computing	16%	\$100	\$117	\$136	\$158	\$183	\$212
Batch Processing	<u>5</u>	<u>83</u>	<u>87</u>	<u>92</u>	<u>96</u>	<u>100</u>	<u>106</u>
TOTAL COMPANY SIZE	12%	\$183	\$204	\$228	\$254	\$283	\$318

1986 MARKET SHARE

- Less than 1% in all categories.

POTENTIAL IMPACT OF ECONOMY

- The difficulties encountered by the savings and loans (thrift organizations in general) will have an impact on the processing revenue, but NCR's improved systems sales and their new graded software support contracts plus unbundled systems and applications software will ensure continued growth of total revenue.

POTENTIAL IMPACT OF COMPETITION

- Many large computer service competitors (e.g. EDS) have a strong interest in the financial and credit union processing market and NCR is vulnerable to such thrusts since management attention is concentrated on hardware sales. The impact of such competitive losses, like total revenue, is hard to evaluate.

POTENTIAL IMPACT OF TECHNOLOGY

- Not relevant in this context.

SUMMARY

- The computer services business does not appear to be a corporate goal for NCR and may be separable as a result.

COMPANY NAME: BRADFORD NATIONAL CORPORATION

HEADQUARTERS: 67 Broad St.
New York, NY 10004

STATUS: Public Company, AMEX

EMPLOYEES: 3,960

PRESIDENT: Peter Del Col

FISCAL YEAR ENDS: 12/31/80

TELEPHONE: (212) 530-2400

HISTORY AND GROWTH

- Founded in 1968 to provide software and systems development services to the financial market, BNC now provides computerized record-keeping for the securities industry, systems development and facilities management to the financial, industry, and government sectors, and extensive trust services and medical claims processing.
- BNC's revenue and net income growth has been very uneven. Over the 1976-1980 period the AAGR of revenue was 21.4%, and 9% for net income.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$ 65.8	\$ 94.0	\$ 118.7	\$ 120.1	\$ 142.7
Percent Growth	15%	43%	26%	1%	19%
Net Income (\$ millions)*	\$ 3.2	\$ 3.8	\$ 4.9	\$ 5.7	\$ 4.4
Percent Growth	(22%)	19%	28%	16%	(22%)

* = to nearest \$100,000

SERVICE TYPE AND DELIVERY MODE

- Bradford's revenue is derived from service fees and the net interest earned from customer balances on deposit at Bradford's chartered trust companies. Interest is also from advances to brokers and dealers having securities clearance activities and from investment in tax-exempt federal, state, and local obligations.

INDUSTRY SECTORS SERVED

- BNC specializes in financial transaction processing and administrative services. Insurance represents 2% of revenue, and the New York State Dept. of Social Securities accounts for 18%. State governments, municipal governments, and the federal government combined account for 30% of total revenue.

INTERNATIONAL MARKETS SERVED

- Not applicable.

HISTORICAL GROWTH BY SEGMENT

	<u>(\$ millions) on Tax Emp. Basis</u>		
<u>Segment</u>	<u>1977</u>	<u>1980</u>	<u>AAGR (percent)</u>
• Trust and Securities	\$71.6	\$ 92.9	9%
• Systems and Facilities	22.5	47.2	28
• Insurance	<u>-</u>	<u>2.9</u>	<u>N/A</u>
	<u>\$94.1</u>	<u>\$143</u>	<u>15%</u>

PROJECTED GROWTH BY SEGMENT

	<u>Segment</u>	<u>AAGR (percent)</u>	<u>\$ millions/Fiscal Year</u>					
			<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
• Processing Services		9%	\$125.6	\$137	\$149	\$162	\$176	\$190
• Professional Services		38	2	2.8	3.8	5.3	7.3	10
• Software Products		30	2.4	3.2	4.1	5.3	6.9	9
	TOTAL COMPANY SIZE	10%	\$130	\$143	\$157	\$173	\$190	\$209

1986 MARKET SHARE

- Not calculable.

POTENTIAL IMPACT OF ECONOMY

- The BNC business is relatively unaffected by economy downturns, other than by a reduction in the volume and value of the securities held in custody (in the case of a stock market liquidation phase). Similarly, Medicaid business is unaffected by the economy. No major impact foreseen.

POTENTIAL IMPACT OF COMPETITION

- The main competition to BNC in its three major markets is:
 - Medical Services: Computer Sciences Corp., EDS and The Computer Company
 - Trust Services: SEI Corporation
 - Shareholder Services: Several banks

POTENTIAL IMPACT OF TECHNOLOGY

- The main impact of acquired technology could be in the development by the banks of superior hardware/software systems that might seriously impact BNC shareholder services business. This cannot be forecast, however.

COMPANY NAME: INFORMATICS

HEADQUARTERS: 21031 Ventura Blvd.
Woodland Hills, CA 91364

STATUS: Public Company, OTC

EMPLOYEES: 2,490

PRESIDENT: Dr. Walter F. Bauer

FISCAL YEAR ENDS: 12/31

TELEPHONE: (213) 887-9040

HISTORY AND GROWTH

- Informatics was founded as a private company in 1962 to provide custom programming services. Equitable Life held 90% of the stock from 1974 to August 1980. The company is now owned by the public (90%) and directors/employees (10%). Over the last five years, revenue growth has been slowing noticeably and net income has been less than 6%. The main culprit is the Software Products division which, until 1981, was growing slowly and barely breaking even, while accounting for 24% of the staff. In 1981, a turnaround was achieved in this area.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$ 58.7	\$ 74.7	\$ 92.5	\$ 112.4	\$ 126
Percent Growth	51%	27%	24%	21%	12%
Net Income (\$ millions)*	\$ (4.8)	\$ 1.3	\$ 3.2	\$ 5.1	\$ 7.7
Percent Growth	N/A	N/A	246%	59%	49%

* = to nearest \$100,000

SERVICE TYPE AND DELIVERY MODE

- There are three operational divisions:
 - The Software Products segment develops, purchases, and markets implementation systems and applications products.
 - The Information Processing Services segment offers timesharing, manual and automated data base, and document handling systems.

- The Professional Services segment serves government (mainly), and commercial clients.

INDUSTRY SECTORS SERVED

- The principal industry sectors served are, as a percent of revenue:

	<u>1978</u>	<u>1979</u>	<u>1980</u>
<u>U.S. Government</u>			
- Software Products	1%	1%	1%
- Professional Services	12	12	8
- Processing Services	10	13	12
<u>Commercial</u>			
- Software Products	34	32	29
- Professional Services	18	20	20
- Processing Services	25	22	20

INTERNATIONAL MARKETS SERVED

- Informatics maintains nine international offices which produce a growing share of the revenue:

	<u>1978</u>	<u>1979</u>	<u>1980</u>
- International	12%	14%	16%

- Two-thirds of this revenue is from software products sales and licenses.

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	<u>1976 (\$ millions)</u>	<u>1980 (\$ millions)</u>	<u>AAGR (percent)</u>
• Software Products	\$21.5	\$38.2	15%
• Information Processing	16.2	53.2	34
• Professional Services	21.6	36.1	14

Note: Divisional revenues include intersegment revenue, not broken out separately.

PROJECTED GROWTH BY SEGMENT

		AAGR (percent)		\$ millions/Fiscal Year					
	Segment			1981	1982	1983	1984	1985	1986
•	Software Products	25%	\$ 39.7	\$ 49.6	\$ 62	\$ 77.5	\$ 96.9	\$ 121	
•	Information Processing	20	57	68.4	82.1	98.5	118	142	
•	Professional Services	5	31.7	33.3	35	36.8	38.6	40.6	
•	International	<u>23</u>	<u>21.9</u>	<u>25.7</u>	<u>30.9</u>	<u>38.2</u>	<u>48.5</u>	<u>60.4</u>	
	TOTAL COMPANY SIZE	19%	\$150.3	\$177	\$210	\$251	\$302	\$364	

1986 MARKET SHARE

- Software Products 0.4%; Processing Services 0.9%; Professional Services 0.6%.

POTENTIAL IMPACT OF ECONOMY

- The principal source of Informatics's growth has been acquisition. Informatics's software products have not been as successfully marketed as they deserve. Fifty percent of all software revenues come from one product: MARK IV. However, 1981 results show a remarkable improvement in software revenue from implementation systems and insurance products. The downturn in the economy is likely to moderate this improvement in 1982 to 1983 however.

POTENTIAL IMPACT OF COMPETITION

- Software technology development is a direct function of R&D dollars spent and Informatics has increased substantial costs in an effort to revitalize its product line. Products such as TAPS are never sold through OEMs, systems houses, manufacturers (PRIME, Harris, Nanodata), and RCS vendors such as COMSERVE. Informatics plans to use these distribution channels more in the future.
- A significant market under development is that for systems implementation tools, and Informatics has clearly identified a high growth market and is establishing an initial lead in software technology.

SUMMARY

- Informatics may be on the verge of a new phase in its growth, based on its systems implementation products and professional services. Acquisition is likely to be the prime source of growth in the processing services area, however.

COMPANY NAME: PLANNING RESEARCH CORPORATION

HEADQUARTERS: 1850 K Street, NW
Washington, DC 20006

STATUS: Public Company, NYSE

EMPLOYEES: 6,659 (6/81 total)
800 (computer systems)

PRESIDENT: John M. Toups

FISCAL YEAR ENDS: 6/30

TELEPHONE: (202) 293-4700

HISTORY AND GROWTH

- Begun in 1954 as an operations research and think tank company, PRC has grown through acquisition to cover:
 - Planning, economics, engineering, and architectural professional services to government, business, and industry.
 - Information sciences/services and management consulting services, providing processing services, professional services, turnkey systems, micrographics, and facilities management.
- The latter is made up of nine semi-autonomous companies, the most important of which is PRC Realty Systems which offers on-line data base driven realty systems to real estate boards and their associated realtors for house selection countrywide.

REVENUE AND NET INCOME

Information Sciences/ Services

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$ 83.2	\$ 87.6	\$ 115.3	\$ 128.1	\$ 130.2
Percent Growth	11%	5%	32%	11%	2%
TOTAL COMPANY REVENUES (\$M)	\$ 148.5	\$ 185.6	\$ 223.4	\$ 261.9	\$ 280.9
Net Profit (\$ millions)*	\$ 3.0	\$ 2.3	\$ 4.4	\$ 5.7	\$ 5.6
Percent Growth	(20%)	(22%)	87%	29%	(3%)

* = to nearest \$100,000

SERVICE TYPE AND DELIVERY MODE

- PRC's information services are varied and specific and do not, as a rule, address commercial markets, with the exception of PRC's Realty Systems (see INDUSTRY SECTORS SERVED below). PRC's attempts to penetrate commercial markets (e.g., their software product CENTRAL SOFTWARE, their turnkey systems operations in the U.K.) have met with failure.
- Turnkey systems are principally sold by PRC Public Management services based on DEC PDP 11 series, providing communications, automated dispatch, and control systems. PRC Realty Systems' attempts to sell turnkey systems to its realtor clients have so far not been successful.
- Professional services are PRC's largest source of business, particularly the 1,000-man team contract to NASA now in its eighth year.
 - Facilities management contracts are at present small in number and large in value.
 - Micrographics contracts include U.S. Navy personnel records and the NRC document control.

INDUSTRY SECTORS SERVED

- Government is the single largest professional services market for PRC including software conversion (e.g., the recent \$20 million contract for upgrading/replacing 150 Burroughs systems that supply logistics support and administrative management to USAF worldwide), facilities management (e.g., the \$22 million contract for NASA's HQ in Washington), turnkey systems (e.g., the automated dispatch and command/control system for fire, police, ambulance and bus fleets), and on-line and batch processing. This sector accounted for 65% of PRC's 1981 revenue. The dominance of foreign, local, and federal government business is shown by the following: in 1981, revenue sources were: U.S. government/military 21%, U.S. government/non-military 22%, U.S. state and local government 16%, foreign governments 12%, all other sectors 29%.

INTERNATIONAL MARKETS SERVED

- PRC serves a wide geographic area covering Australia, Hong Kong, the Philippines, Western Europe, Canada, Puerto Rico, and Venezuela. The Middle East has once again become an important sector to PRC after its significant losses in Iran. PRC operates in a total of 25 country markets.

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	<u>1976 (\$ millions)</u>	<u>1980 (\$ millions)</u>	<u>AAGR (percent)</u>
<u>Information Sciences and Management Consulting</u>			
Revenues	\$83.2	\$130.3	12%
Profit	3.0	5.6	17%

PROJECTED GROWTH BY SEGMENT

	<u>Segment</u>	AAGR (percent)	\$ millions/Fiscal Year					
			1981*	1982	1983	1984	1985	1986
●	Processing Services	9%	\$70	\$70	\$74	\$80	\$92	\$105
●	Professional Services	30	60	78	101	131	171	220
●	Software Products	38	—1	—1	—1	—2	—2	—3
TOTAL INFORMATION SCIENCE AND MANAGEMENT SIZE		20%	\$130	\$149	\$176	\$213	\$265	\$320

* = INPUT estimate

1986 MARKET SHARE

- Realty Systems market 65%; Professional Services 1.3%. Total computer services market share 0.6%.

POTENTIAL IMPACT OF ECONOMY

- The principal part of the U.S. economy that PRC is interested in is the U.S. government/military, which is slated for significant expenditures, if approved by Congress. PRC's contracts with this sector (and others) are multiyear and therefore immune from recession in the short term. The principal impact will be on the real estate services from Realty Systems which are likely to see a pause in the very rapid development experienced until now.

POTENTIAL IMPACT OF COMPETITION

- CSC, Hughes Aircraft, and a number of smaller professional services companies are the main competitors of PRC in government markets, both in the U.S. and abroad. Again, the multiyear contracts protect PRC in the short

term but CSC is a fearsome competitor for PRC and is already the number one vendor in this market and increasing in strength year by year. In the realty systems market, PRC already has the largest share. PRC still does not know how to sell in the commercial marketplace, however.

POTENTIAL IMPACT OF TECHNOLOGY

- PRC's many divisions use technology and apply it, not develop or sell it. As a people/expertise company PRC is immune from technology developments in all areas other than Realty Systems where its own software is state of the art.

SUMMARY

- An attractive acquisition candidate: multiyear contracts protecting revenue base; dominant positions in several specialist markets; business split into many legally separate entities facilitating selective merger, acquisition, or divestiture; low market capitalization (\$42 million) covered by the assets of one division - Realty Systems. A buy.

COMPANY NAME: CHASE ECONOMETRICS/INTERACTIVE DATA
(Computer Power, Managistics, and Chase TCMS)

HEADQUARTERS: 486 Totten Pond Road
Waltham, MA 02154

STATUS: Subsidiary of Chase Manhattan **EMPLOYEES:** 1,300

PRESIDENT: Carl G. Wolf, V.P. Chase **FISCAL YEAR ENDS:** 12/31

TELEPHONE: (617) 890-1234

HISTORY AND GROWTH

- In 1971, Chase Manhattan Bank purchased Chase Econometrics and in 1974, Interactive Data. These operate separately from Chase's other computer services firms: Computer Power, Chase TCMS, and Managistics. CE/IDC offer financial/economic data base services, forecasting, and consulting.
- The growth of "decision support" (securities industry, economic forecasting, corporate accounts, banking) has been significant (INPUT estimates 42%) and even faster over the 1979-1980 period (51%). CE/IDC are expected to enter the TK market in 1983 and to grow software products rapidly through 1986.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$ 24.6	\$ 34.5	\$ 48.3	\$ 67.6	\$ 102
Percent Growth	N/A	40%	40%	40%	51%
Net Income (\$ millions)			----- NOT AVAILABLE -----		
Percent Growth					

* = to nearest \$100,000

HISTORICAL GROWTH BY SEGMENT

	<u>Available Revenues</u>	<u>1979 (\$ millions)</u>	<u>1980 (\$ millions)</u>	<u>AAGR (percent)</u>
-	CE/IDC	\$43.7	\$66.7	51%
-	Computer Power	13.9	16.0	15
-	TCMS/Managistics	<u>10.0</u>	<u>12.0</u>	<u>20</u>
	TOTAL	\$67.6	\$94.7	40%

PROJECTED GROWTH BY SEGMENT

	<u>Segment</u>	<u>AAGR (percent)</u>	<u>\$ millions/Fiscal Year</u>					
•			<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
•	Processing (data base)	28%	\$ 62.4	\$ 79.8	\$102	\$130	\$166	\$210
•	Processing (other)	35	52.8	71.3	96.3	130	176	240
•	Professional Services	15	18.4	21.7	25.6	30.2	35.7	42.1
•	Software Products	46	1.4	2	3	4.4	6.4	9.3
•	Integrated Systems	65	-	-	2	4.2	6.8	9
•	International	<u>60</u>	<u>2</u>	<u>3.2</u>	<u>5.1</u>	<u>8.2</u>	<u>13.1</u>	<u>21</u>
	TOTAL COMPANY SIZE	31%	\$137	\$178	\$234	\$307	\$404	\$531

COMPANY NAME: GEOPHYSICAL SERVICES, INC.

HEADQUARTERS:
M/S 3970
P.O. Box 225621
Dallas, TX 75265

STATUS: Division of Texas Instruments

EMPLOYEES: N/A

MANAGER: Dolan K. McDaniel

FISCAL YEAR ENDS: 12/31

TELEPHONE: (214) 995-2011

HISTORY AND GROWTH

- TI began with a small geophysical service company founded by Cecil Green and Eugene McDermott 50 years ago. Today, Geophysical's \$432 million sales (1980) are just over 10% of TI's \$4 billion total. TI's own view of its geophysical services activities claims technology leadership in the market through 3D seismic surveys and its proprietary G-LOG process. Additionally TI manufactures all its own seismic equipment.
- Geophysical services sales and profit growth have been staggering, with sales improving at an AAGR of 33% (though somewhat unevenly) and profit increasing at an AAGR of 237% (also unevenly).

REVENUE AND NET INCOME

Sales (\$ millions)*	\$138	\$175	\$223	\$267	\$432
Percent Growth	N/A	26.8%	27.4%	19.7%	61.8%
Profit (\$ millions)*	\$ 2	\$ 14	\$ 31	\$ 36	\$ 63
Percent Growth	N/A	700%	221%	16%	175%

* = to nearest \$1 million

SERVICE TYPE AND DELIVERY MODE

- There are two services and two modes of delivery:
 - Seismic data acquisition (by traditional recorders, magnetic tape etc., and by TI minicomputers).

- Seismic data processing (by large-scale IBM mainframes and TI mini-computer-based turnkey systems); both are carried out in batch mode.
- TI's 3D service provides a means for analyzing complex exploration problems, particularly subsurface structures.
- TI's G-LOG process is used in defining stratigraphic traps and features in known potential reservoirs.

INDUSTRY SECTORS SERVED

- Geophysical serves the petroleum industry exclusively and within that sector only the exploration market. Both the land and marine sectors are served, primarily in the U.S. and Central America.

INTERNATIONAL MARKETS SERVED

- International markets (Asia, Central America, and the UK) are estimated to produce 10% of the processing revenues stated, decreasing to 7% by 1985. Caution: this is only estimated since no hard data is available.

HISTORICAL GROWTH BY SEGMENT

	1979 (\$ millions)	1980 (\$ millions)	AAGR (percent)
- Processing services	\$52	\$82	57%
- Turnkey systems	<u>1</u>	<u>3</u>	<u>300</u>
	\$53	\$85	60%

PROJECTED GROWTH BY SEGMENT

Segment	AAGR (percent)	\$ millions/Fiscal Year					
		1981	1982	1983	1984	1985	1986
• Processing services	21%	\$117	\$130	\$140	\$182	\$236	\$308
• Turnkey systems	26	<u>5</u>	<u>7</u>	<u>8</u>	<u>10</u>	<u>13</u>	<u>16</u>
TOTAL COMPANY SIZE	22%	\$122	\$137	\$148	\$192	\$249	\$324
TOTAL INTERNATIONAL	-	\$ 12	\$ 13	\$ 14	\$ 16	\$ 19	\$ 23

POTENTIAL IMPACT OF ECONOMY

- The downturn of the economy and the increasing oil glut will affect Geophysical Services significantly according to Wall St. analysts. Since Geophysical is not in the field development market in any large measure it will be directly affected by the number of exploration contracts let.

POTENTIAL IMPACT OF COMPETITION

- As the number of exploration contracts drops, competition will intensify and margins will be impacted. Geophysical competes with Geosource and Western Geophysical for half the total market in exploration and processing services. It is likely that a number of smaller concerns will be driven from the market.

POTENTIAL IMPACT OF TECHNOLOGY

- As a subsidiary of the giant TI, Geophysical Services has ready access to the best technology available, in the shortest timeframe. Thus any technology changes that occur in the market will be advantageous to Geophysical faster than to any other company.

SUMMARY

- Dull outlook in the short term with possibly the first downturn in revenues and profits in the company's history. Probably difficult to approach as an acquisition since it was (emotionally) the founding block of the TI empire.

COMPANY NAME: WESTERN GEOPHYSICAL
HEADQUARTERS: 10001 Richmond Avenue
 Houston, TX 77042
STATUS: Subsidiary of Litton Industries **EMPLOYEES:** 2,760
PRESIDENT: Booth B. Strange (COB) **FISCAL YEAR ENDS:** 7/31
TELEPHONE: (713) 789-9600

HISTORY AND GROWTH

- WG is the world's largest seismic resource exploration company, surveying land and marine areas for gas, oil, and hydrocarbons. All the equipment used by WG is produced by the parent Litton (Litton Resources Systems division). The seismic survey and data processing services are offered to the petroleum industry in the U.S. and abroad (mainly Canada, the U.K., Singapore, and Italy). WG's share of the seismic processing market is estimated at 18%, slightly ahead of Texas Instrument's Geophysical Services Inc. and Geosource. Growth has been at over 35% per annum (total WG revenues including seismic equipment rental) and 40% for the processing service component of that revenue.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Total WG Revenue (\$ millions)*	\$191**	\$193**	\$282**	\$366	\$505
Percent Growth	N/A	-	1%	46%	30%
Processing Service Revenue (\$ millions)**	\$ 40**	\$ 41**	\$ 59**	\$ 77	\$106
Percent Growth	N/A		2.5%	44%	31%
					37.7%

* = to nearest \$100,000

** = INPUT estimate

SERVICE TYPE AND DELIVERY MODE

- Western Geophysical offers batch processing services of seismic data and 3-D/color display of processed data by its proprietary SHADCON plottings.

SHADCON is a color enhanced printing of processed data. In addition, Western has launched a DEC VAX-based seismic data processing system - the LRS3200, which operates floating point systems, programmable array processors, and WG's own pipeline I/O subsystem. This is in response to Geophysical Service's TI-based turnkey system for batch processing of seismic data.

INDUSTRY SECTORS SERVED

- Western offers the petroleum industry both land and marine seismic surveys and subsequent processing of the seismic data. The largest sector is marine data acquisition where WG has a total of 120 exploration crews and vessels. Western revenues are therefore a composite of land and marine exploration each of which is distorted by the high fees charged for the vessels and crews of specialists needed to carry out a survey. Actual processing revenues are only 21% of total declared revenues.

INTERNATIONAL MARKETS SERVED

- The petroleum survey analysis market is a very large one in both Canada and the U.K. and computer processing facilities were recently expanded in both countries. The combined foreign revenues are a constant 30% of all processing revenues and expanding at an equivalent rate to the U.S. market. This proportion is likely to increase to 24% by 1985 due to the weakness of the U.S. oil exploration market in 1982-1983.

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	<u>1979 (\$ millions)</u>	<u>1980 (\$ millions)</u>	<u>AAGR (percent)</u>
• Processing Services (U.S.)	\$59	\$ 82	40%
• Foreign	<u>18</u>	<u>24</u>	<u>33</u>
TOTAL	\$77	\$106	37.7%

PROJECTED GROWTH BY SEGMENT

	<u>AAGR (percent)</u>	<u>\$ millions/Fiscal Year</u>				
		<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
• Batch Processing (U.S.)	21%	\$106	\$127	\$137	\$178	\$232
• Batch Processing (Int'l)	25	30	37	46	58	73
• Turnkey Systems (all)	25	<u>2</u>	<u>2.5</u>	<u>3</u>	<u>4</u>	<u>5</u>
TOTAL COMPANY SIZE		\$138	\$166	\$189	\$240	\$310
TOTAL INTERNATIONAL		\$ 30	\$ 38	\$ 47	\$ 60	\$ 75

POTENTIAL IMPACT OF ECONOMY

- The economic downturn and the resulting glut of oil has produced a slight slackening in demand for further exploration. Well drilling was nevertheless at a high in the U.S. in 1981. However, if current trends continue, with the emphasis on energy saving, fuel economy, and the sudden addition of China's newly found reserves (equivalent to Saudi Arabia's) to an already overburdened oil market, demand for exploration could collapse.

POTENTIAL IMPACT OF COMPETITION

- The seismic survey/analysis business is an extremely competitive environment and one where new approaches to the marketplace can have dramatic impact, particularly in the area of immediacy of response on data acquired. Software is of course a key component and is slow to evolve. Nearly all the vendors have standardized on DEC VAX 11/780 systems, eliminating some of the hardware-based differences.

POTENTIAL IMPACT OF TECHNOLOGY

- The use of satellites to transmit, in real time, the survey data as it is produced to large computer centers (as opposed to the overland transmission of magnetic tapes, as is now used) would be of great value to survey operators since it would allow repositioning of the seismic survey equipment dynamically in response to data analysis. The first vendor to offer this may gain a decisive advantage. Also, turnkey minicomputers are gradually reaching the processing speed/storage capacity necessary to be able to compete for a part of this market.

SUMMARY

- The seismic survey/analysis business is at the tail end of a boom phase and may suffer a downturn of significant proportions. Some of the techniques used can be adapted for mining surveys, offering alternate markets, but some caution with the future of the business appears necessary.

COMPANY NAME: GEOSOURCE, INC.

HEADQUARTERS: 2700 South Post Oak Road
Suite 2000
Houston, TX 77056

STATUS: Public Company, NYSE **EMPLOYEES:** 7,500

PRESIDENT: John D. Platt, Chairman and CEO **FISCAL YEAR ENDS:** 9/31

TELEPHONE: (713) 961-1111

HISTORY AND GROWTH

- Begun in 1973 as a privately held corporation by Aetna Life, Rockwell Int'l., and private investors, the company bought Ray Engineering, a worldwide geophysical services and equipment company, followed immediately by Petty Geophysical Engineering Co. The two were combined to form the Petty-Ray Geophysical Division which is still the heart of the company. On April 16, 1982, Aetna Life, which owned 29% of Geosource, agreed to acquire the remaining 71% for stock worth \$638 million.
- During the last five years, the company's sales have increased by an AAGR of 28% and net income at an AAGR of 40%. With assets of \$343 million and debt of only \$45 million the company has a strong balance sheet. First quarter 1982 net income rose 106%.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Sales (\$ millions)*	\$214	\$224	\$276	\$367	\$468
Percent Growth	4.5%	23.2%	23.2%	32.9%	27.5%
Net Income (\$ millions)*	\$ 11.2	\$ 14.1	\$ 18.2	\$ 22.7	\$ 35.4
Percent Growth	25.9%	29.0%	24.7%	24.7%	55.9%

Note: not adjusted to reflect acquisitions.

* = to nearest \$100,000

SERVICE TYPE AND DELIVERY MODE

- Currently all the seismic survey data processing is done in batch mode using plug compatible IBM mainframes and its own TEMPUS package. This is gradually being changed to a DEC VAX 11/780 multitasking environment. There are 17 data processing centers worldwide, all operating on a similar basis. Geosource also offers customized software (GEOSTAR, state of the art DBMS), turnkey systems (TEMPUS and COMMAND), and a high resolution output device called LASER-PLOT (photographic recorder with 500ipi resolution).

INDUSTRY SECTORS SERVED

- Three major markets are served within the petroleum industry:
 - Petroleum exploration.
 - Petroleum development.
 - Petroleum processing and distribution.
- Thus the Geosource revenues include 100 land crews, four marine vessels, valves, pumps, drilling rigs, sensors, cables, etc. Even the "Services" components include data acquisition (land and marine) as well as specialized interpretation services.

INTERNATIONAL MARKETS SERVED

- Geosource is active in 19 countries, with 60% of its crews operating outside the U.S. It obtained a world first when it contracted to explore the Tsaidam basin of Western China for \$34 million.

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	<u>1980 (\$ millions)</u>	<u>1981 (\$ millions)</u>	<u>AAGR (percent)</u>
• Processing Services	\$ 75	\$100*	33%
• Total unadjusted for acquisitions	468	N/A	N/A
• Total adjusted for acquisitions	539	731	36

* INPUT estimate

PROJECTED GROWTH BY SEGMENT

		AAGR (percent)						\$ millions/Fiscal Year
	Segment		1981	1982	1983	1984	1985	
●	Processing Services Total	30%	\$100	\$120	\$130	\$169	\$220	
	TOTAL COMPANY SIZE		\$100	\$120	\$130	\$169	\$220	
	TOTAL INTERNATIONAL		\$ 40	\$ 52	\$ 67	\$ 87	\$114	

POTENTIAL IMPACT OF ECONOMY

- Geosource is less vulnerable to economic downturns, oil gluts, and a price decrease of oil than most, since (i) exploration represents an already decreasing proportion of revenues (now 53%), (ii) third-world exploration (South America, Africa, Asia, China) will continue even in a Western World recession, (iii) Geosource has begun to expand operations into the petroleum development market, where the fruits of past exploration/analysis are culled. However, decreased crew activity is bound to occur in 1982 with the consequent loss of earnings.

POTENTIAL IMPACT OF COMPETITION

- Geosource has R&D expenditures in the top three companies of the industry. New technology and innovative products are a must in the market since seismic/exploration technology has a very short life. In addition, Geosource has a good balance between U.S./Western World earnings, and Third World country earnings as well as a presence in all three of the major petroleum industry markets (exploration, development, and processing/distribution).

POTENTIAL IMPACT OF TECHNOLOGY

- Initially, higher and higher oil prices made the risk of deeper drilling, off-shore drilling, and drilling in hostile environments attractive. The Western World's sudden recession and the consequent drop in oil prices make the new technology needed for these harsher environments less important since exploration is likely to decrease in intensity.
- Computer technology development, along with the integration of in-house developed software for specific applications such as rig positioning, is still very important, and Geosource is well placed in this regard.

SUMMARY

- A very promising company, likely to be market leader by 1983 in its field. Revenue growth is expected to slow to 20% in 1982 and to 8% in 1983 before resuming stronger growth trends, while the share of international revenues is expected to rise from 40% to 50%.

COMPANY NAME: UNIVERSITY COMPUTING COMPANY

HEADQUARTERS:
UCC Tower
Exchange Park
Dallas, TX 75235

STATUS: Subsidiary of Wily Corp.,
Public Company, NYSE **EMPLOYEES:** 1,575

PRESIDENT: John Kason **FISCAL YEAR ENDS:** 12/31/80

TELEPHONE: (214) 353-7100

HISTORY AND GROWTH

- Wily Corporation was formed in 1963 and provides, through its wholly owned subsidiary UCC, software products, processing services, turnkey systems and computer equipment to the U.S., Canadian, and Western European markets.
- Revenue growth over the five years to 1980 has been at an AAGR of 17% with significant increases in 1980. Net income has varied enormously, from significant losses to no less significant profits.
- Growth has been accelerated in 1981 by three acquisitions: Digital Systems of Florida, Valuation Research and the PIPS division of Financial Industry Systems, and more recently by Fortex Data (1982).

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$ 61.8	\$ 68.9	\$ 76.9	\$ 87.1	\$ 117.8
Percent Growth	(1%)	11%	12%	13%	35%
Net Income (\$ millions)*	\$ (71)	\$ (4.6)	\$ 75.4	\$ 6.2	\$ 34.9
Percent Growth	(36%)	93%	1726%	(92%)	462%

* = to nearest \$100,000

SERVICE TYPE AND DELIVERY MODE

- UCC offers processing services through its U.S. Computing Services Division (scientific and engineering data processing), European Utility Division (mainly

interactive services in the scientific/engineering and commercial sectors), and Automation Centers Group (batch and remote batch services to general business application users).

- The Software Products group markets systems and applications software products worldwide.
- The rapidly developing Digital Systems group offers integrated TK systems to legal practices, construction contractors, and general business users.

INDUSTRY SECTORS SERVED

- Discrete Manufacturing	20%
- Process Manufacturing	20
- Transportation	5
- Utilities	5
- Banking/Finance	15
- Insurance	5
- Medical/Hospital	2
- Education	2
- Distribution	15
- Other	11

INTERNATIONAL MARKETS SERVED

- UCC's activity in Europe centers on three groups:
 - Automation Centers Group providing processing services in Brussels, Dusseldorf, Frankfurt, Hamburg, Munich, Stuttgart, Vienna, and Zurich.
 - European Utility Division providing processing services to London, Birmingham, Manchester, Paris, The Hague, and Frankfurt.
 - UCC Software Products selling systems and applications software products to Western European markets.

HISTORICAL GROWTH BY SEGMENT (including international)

<u>Segment</u>	<u>1976 (\$ millions)</u>	<u>1980 (\$ millions)</u>	<u>AAGR (percent)</u>
• Processing Services	\$50.4	\$71.9	9%
• Software Products	11.4	27.1	24
• Turnkey Systems	-	9.5	N/A
• Hardware	<u>-</u>	<u>9.3</u>	<u>N/A</u>
	<u>\$61.8</u>	<u>\$117.8</u>	<u>17%</u>

<u>International</u>	<u>1977 (\$ millions)</u>	<u>1980 (\$ millions)</u>	<u>AAGR (percent)</u>
• Western Europe	\$33.6	\$44.9	10%
• Canada	<u>0.7</u>	<u>1.1</u>	<u>16</u>
TOTAL International	\$34.3	\$46.0	10%

PROJECTED GROWTH BY SEGMENT

<u>Segment</u>	<u>AAGR (percent)</u>	<u>\$ millions/Fiscal Year</u>					
		<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
• International	10%	\$ 49	\$ 54	\$ 59	\$ 65	\$ 72	\$ 79
• Hardware	24	12	16.7	21.8	26.7	31.6	35.3
• Processing Services	7	49.7	53.2	56.9	60.9	65.1	69.7
• Software Products	21	27.4	33.1	40.1	48.5	58.7	71.1
• Turnkey Systems	<u>35</u>	<u>8.9</u>	<u>12</u>	<u>16.2</u>	<u>21.9</u>	<u>29.6</u>	<u>39.9</u>
TOTAL COMPANY SIZE	15%	\$147	\$169	\$194	\$223	\$257	\$295

1986 MARKET SHARE

- All markets less than 1%.

POTENTIAL IMPACT OF ECONOMY

- All of UCC's markets are subject to impact from a weakening economy. The impact on revenue is masked by the acquisition program underway directed at

minicomputer turnkey, and software product companies, but cannot be masked on net income.

POTENTIAL IMPACT OF COMPETITION

- UCC's competitive status is not strong in the processing services markets served, and competition is fierce in the systems software markets. The newly acquired turnkey companies appear to have clearly defined vertical markets, however, which lessens the number of competitors.

POTENTIAL IMPACT OF TECHNOLOGY

- Most of the processing services are supported by diverse ageing equipment (IBM 360/370, Siemens 4004, Univac 1108s, CDC Cyber) and are increasingly vulnerable to price/performance improvements offered by new hardware products.

SUMMARY

- After the 1978 recapitalization, Wly has grown at a 24% AAGR in revenue terms. Net income has dropped, however, from \$34.9 million in 1980 to \$9.7 million on revenues of \$147 million in 1981. Wly continues to acquire majority and minority interests in young software companies, indicating the thrust of corporate thinking.

COMPANY NAME: SHARED MEDICAL SYSTEMS

HEADQUARTERS: 650 Park Avenue
King of Prussia, PA 19406

STATUS: Public Company, OTC

EMPLOYEES: 1,246

PRESIDENT: Harvey J. Wilson

FISCAL YEAR ENDS: 12/31/80

TELEPHONE: (215) 265-7600

HISTORY AND GROWTH

- Formed in 1969 to provide information services to the hospital industry by former IBM marketing staff engaged in selling in-house systems to that market, SMS became a public corporation in 1976.
- SMS is the largest vendor to the hospital industry offering remote computing and minicomputer based services, and has produced a revenue AAGR of 32% over the 1976-1980 period. Net income grew by the equivalent of AAGR 26%.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$35.5	\$45.7	\$63.1	\$82.8	\$106.6
Percent Growth	57%	29%	38%	31%	29%
Net Income (\$ millions)*	\$ 5.3	\$ 6.8	\$ 8.6	\$10.8	\$ 13.3
Percent Growth	89%	29%	27%	25%	23%

* = to nearest \$100,000

SERVICE TYPE AND DELIVERY MODE

- Processing services provide the basic accounting applications required by hospitals, through batch and interactive modes. Seventy-five percent of the hospitals served use the interactive mode.
- Minicomputer-based turnkey systems are offered for hospitals requiring stand-alone capabilities. Most use it as an entry node to the network, however.

- During 1980, a new group practices Physicians Service System (turnkey) was introduced.

INTERNATIONAL MARKETS SERVED

- SMS established SMS International to offer SMS products outside North America, but very little revenue is expected before the end of the 1980s.

HISTORICAL GROWTH BY SEGMENT

Segment	1976 (\$ millions)	1980 (\$ millions)	AAGR (percent)
• Processing Services	\$33.8	\$ 90.6	28%
• Turnkey Systems	1.7	15.9	75
• COM	<u>N/A</u>	<u>0.1</u>	<u>N/A</u>
TOTAL	\$35.5	\$106.6	32%

PROJECTED GROWTH BY SEGMENT

Segment	AAGR (percent)	\$ millions/Fiscal Year					
		1981	1982	1983	1984	1985	1986
• Processing Services	28%	\$113*	\$144	\$185	\$237	\$303	\$381
• Turnkey Systems	22	18.5*	22.6	27.5	33.6	41.0	50.0
• COM	<u>40</u>	<u>0.1*</u>	<u>0.2</u>	<u>0.3</u>	<u>0.4</u>	<u>0.5</u>	<u>0.6</u>
TOTAL COMPANY SIZE	26%	\$131.6	\$167	\$213	\$271	\$345	\$431

* INPUT estimate

POTENTIAL IMPACT OF ECONOMY

- The health care sector is relatively immune from economy downturns, but the expenditure patterns from the sector are not. It is expected therefore that the interactive and batch processing services will continue to grow but the turnkey system sales will be slowed.

POTENTIAL IMPACT OF COMPETITION

- The principal competitor of SMS is MCAUTO in the processing services portion of the health care services market. Various in-house systems based on minicomputers are offered by IBM, Technicon, HBO, and Tymshare.

POTENTIAL IMPACT OF TECHNOLOGY

- The principal technology developments that will affect the market are software developments. These do not occur rapidly so that any changes will have a gradual impact. SMS's own R&D efforts are substantial in this regard and look capable of maintaining the company's market leadership.

SUMMARY

- An excellent acquisition candidate.

COMPANY NAME: SUN INFORMATION SERVICES

HEADQUARTERS: 680 E. Swedesford Road
Wayne, PA 19087

STATUS: Subsidiary of Sun Co. Inc.

EMPLOYEES: 1,200

PRESIDENT: John M. Ryan

FISCAL YEAR ENDS: 12/31

TELEPHONE: (215) 293-9600

HISTORY AND GROWTH

- SIS was formed in 1975 by its parent to provide external computing services in addition to supporting internal and affiliated company EDP requirements. SIS presently provides software and processing services to the banking industry, offers a disaster recovery service, and provides general remote computing services.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Non-captive Revenue (\$ millions)*	\$ 2	\$ 7	\$15	\$22	\$38
Percent Growth	350%	214%	46%	78%	53%
Captive Revenue (\$ millions)*	<u>\$ 30</u>	<u>\$ 33</u>	<u>\$35</u>	<u>\$48</u>	<u>\$57</u>
TOTAL	\$ 32	\$ 40	\$50	\$79	\$95

Net Income: Not Available

* INPUT estimate

SERVICE TYPE AND DELIVERY MODE (NON-CAPTIVE)

<u>Service Type</u>	<u>Percent</u>	<u>Revenue Value 1981 (\$ millions)</u>
- Processing Services	75%	\$43.5
- Software Products	15	8.7
- Professional Services	5	2.9
- Turnkey	<u>5</u>	<u>2.9</u>
TOTAL		\$58.0

INDUSTRY SECTORS SERVED

- Banking 75%
- Other industries served include manufacturing (process and discrete), distribution, utilities, and insurance.

INTERNATIONAL MARKETS SERVED

- Approximately 1% of SIS revenue is derived from international sources, primarily from software sales. SIS does not actively market overseas.

SERVICES OFFERED

- SIS is organized into two groups:
 - Computer/Communications Group has two marketing divisions and one internal support organization.
 - . Sungard Division offers disaster recovery services.
 - . Data Services Division markets software products, a process control turnkey system, and general timesharing services.
 - . Data Centers and Communications Network Division supports regional and network services for external and internal clients.
 - Banking Services Group manages four subsidiary operations.
 - . Catalactics provides processing services and markets software products to large trust departments.
 - . Weiland Computer Group provides processing services and markets software products primarily to banks in the Chicago area.

- Applied Financial Systems sells software and provides processing for stock transfer and trusts.
- NMF provides personal trust processing services.

PROJECTED GROWTH BY SEGMENT

	<u>Segment</u>	AAGR (percent)	\$ millions/Fiscal Year (Non-Captive Only)					
			1981	1982	1983	1984	1985	1986
•	Processing Services	26%	\$43.5	\$55	\$69	\$ 87	\$109	\$132
•	Software Products	30	8.7	11	15	19	25	—
•	Professional Services	30	2.9	4	5	6	8	—
•	Turnkey and Other	45	2.9	4	6	9	13	—
	TOTAL NON-CAPTIVE	28%	\$58	\$74	\$94	\$121	\$155	\$192

1986 MARKET SHARE

- In the disaster recovery field, Sun is the market leader. This service is growing at a phenomenal 100% per annum.

POTENTIAL IMPACT OF ECONOMY

- With nearly 60% of revenue from parent and subsidiary captive sources, SIS will be less severely impacted by economy downturns than its free market competitors. However some cutbacks are inevitable due to the plunging price of oil (where the partner company and many affiliates are heavily involved).

POTENTIAL IMPACT OF COMPETITION

- SIS has demonstrated by its rapid growth that it can compete on the open market (even allowing for the revenue growth generated by acquisitions). Disaster recovery services and specialist banking services operate in vertical markets where the effects of competition are lessened. SIS is the leading vendor of disaster recovery services and in the top ten for various trust services. Regionally it is the leading vendor for bank processing in the Chicago area.

POTENTIAL IMPACT OF TECHNOLOGY

- The greatest impact of technology could be in the backup service (where "automatic" backup has been talked about by major mainframe vendors).

SUMMARY

- SIS has grown rapidly over the past five years (primarily through acquisition) and is looking more toward building a profitable organization than achieving high growth rates. Future emphasis will be on maintaining or increasing its market share and firming up its market position. Acquisition may continue but it will be done on a much more selective basis and probably only where it will strengthen existing business.
- SIS will be offering a shared ATM network service for the Chicago area starting in April 1982. INPUT anticipates new offerings in the trust area, possibly a turnkey system.

COMPANY NAME: COMSHARE, INC.
HEADQUARTERS: 3001 South State Street
 Ann Arbor, MI 48106
STATUS: Public Company, OTC **EMPLOYEES:** 1,282
PRESIDENT: Richard L. Crandall **FISCAL YEAR ENDS:** 6/30
TELEPHONE: (313) 994-4800

HISTORY AND GROWTH

- Founded in 1966 to provide commercial timesharing, the company has expanded into international markets and has specialized in five application areas: personnel administration, financial planning/analysis, certified public accounting, telephone company traffic administration, and trust administration.
- Over the 1976-1981 period, Comshare has increased its revenues at an AAGR of 51% and net income at 62%. Revenues and net income were both short of expectations in 1981 and halted this rapid growth trend.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$13.8	\$ 16.7	\$23.4	\$47.2	\$70.8
Percent Growth	12%	21%	40%	102%	50%
Net Income (\$ millions)*	\$ 0.7	\$ 1.4	\$ 2.7	\$ 4.1	\$ 4.8
Percent Growth	(12%)	100%	93%	52%	17%

* = to nearest \$100,000

SERVICE TYPE AND DELIVERY MODE

- Ninety-eight percent of Comshare's revenues are derived from processing services and 2% from minicomputer-based services. The majority of the processing revenues come from specialty applications on the timesharing network and from several batch data centers. Specialty packages include PARSEC, 4.I.I., PROFILES, and COMPASS; in Europe, foreign exchange banking applications like MONITA, government problem-solving applications like COUNSELLA, and VISOR a stock/production control system. Revenues

from Comshare's data base management system, QUESTAR, and related products now account for 14% of total revenue.

INDUSTRY SECTORS SERVED

- In the U.S. there are five specialty divisions:
 - Communications Product Services: developing applications for telephone companies and network administration.
 - COMPASS Services: specialty software and services for certified public accountants.
 - Human Resource Management: applications services for personnel administration.
 - Financial Planning and Control: financial modeling, analysis, forecasting and compliance reporting applications for medium/large companies.
 - Trust Services: employee benefit plans recordkeeping and personnel trusts. Comshare added, in 1980, a hardware sales division, a time-sharing wholesale division, and a computer graphics division.

INTERNATIONAL MARKETS SERVED

- Commander II services are offered in London, Tokyo, Toronto, and shortly will be from Valbonne (France). There are 16 city branches in the U.K., one in Brussels, two in the Netherlands, one in Cologne, and one in Paris. European operations contributed \$32.6 million revenues in 1981, up from \$29.4 million in 1980 and \$15.5 million in 1979.

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	<u>1979 (\$ millions)</u>	<u>1980 (\$ millions)</u>	<u>AAGR (percent)</u>
• U.S. Processing	\$31.7	\$49.8	25%
• European Processing	15.5	32.6	45
• Turnkey	-	0.5	N/A
TOTAL	\$47.2	\$82.9	32%

PROJECTED GROWTH BY SEGMENT

		AAGR (percent)							\$ millions/Fiscal Year
	Segment		1981	1982	1983	1984	1985	1986	1987
•	U.S. Processing (Data Base)	25%	\$ 3.3	\$ 4.1	\$ 5.1	\$ 6.4	\$ 8	\$ 11	\$ 14
•	U.S. Processing (Other)	25	46.5	58.2	72.7	90.9	113	141	178
•	International Processing	21	32.6	37.5	43.1	54	67	81	98
•	Turnkey	80	0.5	0.9	1.6	2.9	5.2	8.5	12.0
	TOTAL COMPANY SIZE	23%	\$82.9	\$101	\$123	\$154	\$193	\$241	\$294

1986 MARKET SHARE

- Remote computing 1.9%.

POTENTIAL IMPACT OF ECONOMY

- The U.S. and U.K. economy downturns have already significantly impacted Comshare. In 1980, the U.K. operations contributed 41.5% of total revenue and 38% of operating income. Revenue growth had been 89% (1980-1979). In 1981, that pattern stopped. The U.K. grew only 10%, the U.S. only 21% (down from 31% in 1980-1979). No improvement can be expected in 1982, but a slow recovery is possible in 1983.

POTENTIAL IMPACT OF COMPETITION

- Comshare's competitors are the top RCS vendors: ADP Network Services, GEISCO, National CSS, and Tymshare. All are facing the same difficulties produced by the economy downturn. No significant impact from the competition is seen over the forecast period.

POTENTIAL IMPACT OF TECHNOLOGY

- Comshare's strategy is to add specialty timesharing products, either through its own development programs or acquisitions, expand color business graphics (where they feel there is a large untapped market), expand minicomputer-based systems, and add microcomputer software (development, sale, support).

SUMMARY

- Comshare will continue to develop along its earlier growth path through its specialized products and services as soon as the economic climate improves. The new products place it in good growth markets.

COMPANY NAME: XEROX COMPUTER SERVICES

HEADQUARTERS: 5310 Beethoven Street
Los Angeles, CA 90066

STATUS: Operating division of Xerox
Information Products Group

EMPLOYEES: 1,040

PRESIDENT: Haig Bazorian

FISCAL YEAR ENDS: 12/31

TELEPHONE: (213) 390-3461

HISTORY AND GROWTH

- Formed in 1970 to provide interactive processing services to the manufacturing, distribution, local government, and utilities markets, XCS has grown to a \$75 million company, \$60 million of which is non-captive. Entry into the turnkey markets was achieved in January 1981 through the purchase of Praxa Corporation which sells TK distribution and manufacturing systems based on DEC hardware. Software products will now be licensed to users through the direct sales force out of 21 branch offices, as well as being packaged with TK hardware that includes H-P 3000, IBM 4341, and DEC PDP 11/VAX.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$28	\$35	\$46	\$60	\$74.3
Percent Growth	56%	25%	31%	30%	24%
Net Income (\$ millions)*	----- NOT AVAILABLE -----				
Percent Growth					

* = to nearest \$100,000

SERVICE TYPE AND DELIVERY MODE

- The processing services, which represent 74% of 1980 revenues, are composed entirely of remote computing services. Only 5% of these are remote batch and 95% are interactive. Now, however, a major thrust is developing in the turnkey systems and software products markets, with license fees ranging from \$150,000 to \$350,000 for the Interactive Accounting System software. XCS commercial users range from single terminal, \$1,500/month customers to

50-terminals, \$50,000/month users. Total client base is estimated at 850 users.

- XCS does not provide the internal data processing services of Xerox Corporation and Xerox business is obtained in competition with internal facilities and outside competitors.

INDUSTRY SECTORS SERVED

- The targeted industries are assembly and process manufacturing, wholesale distribution, city government, and utilities. Xerox's acquisition activity has focussed on expansion of these services rather than diversification into new markets. Discrete manufacturing accounts for 60% of revenues, followed by wholesale distribution with 30%. The principal revenue-producing applications are:
 - Accounts receivable.
 - Cost planning and control.
 - Inventory control.
 - Materials requirement planning.
 - Order entry and invoicing.

INTERNATIONAL MARKETS SERVED

- To date there has been no significant development of international markets other than the servicing of Rank Xerox in the Netherlands through a minicomputer-based node in Ven Ray, Netherlands, and general services to the U.K. Contribution of international markets to 1981 revenue is expected to be around 2%.

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	<u>1979 (\$ millions)</u>	<u>1980 (\$ millions)</u>	<u>AAGR (percent)</u>
• Processing Services	\$47.5	\$55.1	16%
• Software Products	2.5	2.3	(8)
• Professional Services	-	1.2	N/A
• Other (including turnkey)	<u>10.0</u>	<u>15.7</u>	<u>57</u>
TOTAL	\$60.0	\$74.3	23.8%

PROJECTED GROWTH BY SEGMENT

	<u>Segment</u>	<u>AAGR (percent)</u>		<u>\$ millions/Fiscal Year</u>				
●	Processing Services	15%	\$63.3	\$ 72.8	\$ 83.8	\$ 96.3	\$110	\$127
●	Software Products	38	3.7	5.1	7.1	9.7	13.4	18.5
●	Professional Services	35	2.0	2.7	3.7	4.9	6.6	9.0
●	Turnkey	30	7.0	11.3	16.8	24.8	33.8	44.4
●	Other (captive, foreign)	<u>10</u>	<u>12</u>	<u>14.1</u>	<u>15.6</u>	<u>17.3</u>	<u>19.2</u>	<u>21.1</u>
	TOTAL COMPANY SIZE	20%	\$88	\$106	\$127	\$153	\$183	\$220
	TOTAL INTERNATIONAL	15%	\$ 1.8	\$ 2.0	\$ 2.3	\$ 2.7	\$ 3.1	\$ 3.7

POTENTIAL IMPACT OF ECONOMY

- XCS is vulnerable in all its markets: manufacturing, distribution, local government, and even captive in-house processing, all of which are affected by a weak economy and a recessionary trend. For this reason the forecast is for an AAGR of 20% as opposed to earlier years' 23.8%.

POTENTIAL IMPACT OF COMPETITION

- The XCS view of competition is:
 - Small regionally located TK system vendors.
 - Other interactive vendors active in XCS's industry markets such as Martin Marietta and COMSERV.
 - The major manufacturers (IBM, Honeywell, Burroughs) who are offering in-house timesharing-like services on H/W ranging down to minicomputers.

POTENTIAL IMPACT OF TECHNOLOGY

- Xerox Computer Services has suffered in the past from the use of a discontinued line of hardware (Xerox Sigma 9s) and has been converting hardware and software to IBM/IBM compatible equipment since 1978. It still has a long way to go, however. Thus competitive developments, H/W and S/W, in the marketplace are hard to respond to. However, this has also been the problem of some of its competitors.

SUMMARY

- XCS has clearly focussed on its product strengths and is not dependent on in-house captive business to operate as a viable business entity. The emphasis on software technology and new marketing methods for its products augurs well for the company's future development and health.

COMPANY NAME: ANACOMP, INC.

HEADQUARTERS: 11550, North Meridian Street
Suite 600
Carmel, IN 46032

STATUS: Public, OTC **EMPLOYEES:** 1,800

PRESIDENT: Ronald D. Palamara **FISCAL YEAR ENDS:** 6/30

TELEPHONE: (617) 844-9666

HISTORY AND GROWTH

- Founded in 1968 and already one of the fastest growing vendors in the information services market, Anacomp has targeted banking, facilities management, processing services, micrographics, and turnkey systems based on minicomputers and microcomputers. Acquisitions have played a dominant role in the revenue growth, producing an estimated 85% of the total growth both by the addition of the revenues of the acquired companies and from the internal growth of these acquisitions.
- Revenue growth from 1976 to 1981 was at an AAGR of 53% and net income rose at an AAGR of 59%.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$ 12.9	\$ 17.2	\$ 23.4	\$ 41.7	\$ 71.6
Percent Growth	44%	33%	36%	78%	72%
Net Income (\$ millions)	\$ 0.8	\$ 1.2	\$ 1.6	\$ 2.8	\$ 4.9
Percent Growth	(5)%	43%	31%	75%	75%

* = to nearest \$100,000

SERVICE TYPE AND DELIVERY MODE

Estimated as follows:

	<u>Percent</u>	<u>\$ millions, 1980</u>
- Data Services Division	13%	\$ 9.3
- Financial Services Division	42	30.1
- Government Services Division	15	10.7
- Micrographics Division	30	21.5

INDUSTRY SECTORS SERVED

Estimated as follows:

	<u>Percent</u>	<u>\$ millions, 1980</u>
- Banking and Financial	41%	\$29.4
- Government	14	10.0
- Commercial (manufacturing, utilities, distribution, medical, insurance, and education)	45	32.2

INTERNATIONAL MARKETS SERVED

- Foreign revenues, produced by operations in Australia, Europe, the Middle East, and South America are estimated to produce 5% of revenues or \$3.6 million in 1980.

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	<u>1979 (\$ millions)*</u>	<u>1981 (\$ millions)*</u>	<u>AAGR (percent)</u>
- Processing Services	\$15.9	\$ 54	84%
- Professional Services	1.5	4.0	63
- Software Products	3.9	10.4	60
- Integrated Systems	7.1	13.5	38
- International	2.4	4.5	38
- Other	10.9	20.0	35
	\$41.7	\$106.4	60%

* INPUT estimate

PROJECTED GROWTH BY SEGMENT WITHOUT ACQUISITIONS

	<u>Segment</u>	<u>AAGR (percent)</u>	<u>\$ millions/Fiscal Year</u>					
•	Processing Services	15%	\$ 54.0	\$ 62.1	\$ 71.4	\$ 82.1	\$ 94.5	\$109
•	Professional Services	38	4.0	5.5	7.6	10.5	15	20
•	Software Products	32	10.4	13	17	23	30	40
•	Integrated Systems	28	13.5	17.3	22.0	28.0	36	46
•	International	25	4.5	5.6	7.0	8.8	11	14
•	Other	<u>20</u>	<u>20.0</u>	<u>24.0</u>	<u>29.0</u>	<u>35.0</u>	<u>42</u>	<u>50</u>
	TOTAL COMPANY SIZE	21%	\$106.4	\$127.5	\$154	\$187.4	\$228.5	\$279

1986 MARKET SHARE

- Anacomp is the nation's leading vendor of COM services and has gained a leading role in the provision of continuous integrated systems to the banking community.

COMPANY NAME: NATIONAL DATA CORPORATION

HEADQUARTERS: One National Data Plaza
Corporate Square
Atlanta, GA 30329

STATUS: Public Company, OTC

EMPLOYEES: 2,600

PRESIDENT: L. C. Whitney

FISCAL YEAR ENDS: 5/31

TELEPHONE: (404) 329-8500

HISTORY AND GROWTH

- National Data Corporation was founded in 1967 to provide specialized data processing and facilities management services. NDC provides cash management, credit card, merchandising, health care and information management services. Its facilities management services include credit card billing.
- Revenue growth from 1977 to 1981 was at an AAGR of 17.5% while net income rose at a 25% AAGR.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$ 31.3	\$ 33.7	\$ 39.2	\$ 49.4	\$ 60.1
Percent Growth	7%	8%	16%	26%	22%
Net Income (\$ millions)*	\$ 2.0	\$ 2.5	\$ 3.2	\$ 4.3	\$ 5.7
Percent Growth	17%	22%	29%	34%	33%

* = to nearest \$100,000

HISTORICAL GROWTH BY SEGMENT

<u>Segment (Available only)</u>	<u>1979 (\$ millions)</u>	<u>1981 (\$ millions)</u>	<u>AAGR (percent)</u>
● Processing Services			
- Cash Management	\$17.8	\$27.5	24%
- Credit Card	13.7	23.4	31
- Merchandising	3.2	4.7	21
- Health Care	1.2	4.1	85
- Other	<u>0.9</u>	<u>1.5</u>	<u>29</u>
Subtotal	\$36.8	\$61.2	29%
● Facilities Management			
- Arco	11.2	11.4*	
- Other	<u>1.4</u>	<u>3.2</u>	
Subtotal	<u>\$12.6</u>	<u>14.6</u>	<u>8%</u>
TOTAL	<u><u>\$67.4</u></u>	<u><u>\$75.8</u></u>	<u><u>6%</u></u>

all but \$2-3 million lost, ARCO cancelled FM contract.

PROJECTED GROWTH BY SEGMENT

<u>Segment</u>	<u>AAGR (percent)</u>	<u>\$ millions/Fiscal Year</u>					
		<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
● Rapidata	-	-	\$ 20.0	\$ 93.4	\$103	\$113	\$125
● Processing Services	15%	61.2	64.9		\$103	\$113	\$125
● Facilities Management	8	<u>14.6</u>	<u>5.8</u>	<u>6.7</u>	<u>7.7</u>	<u>8.8</u>	<u>10.0</u>
TOTAL COMPANY SIZE		\$75.8	\$ 90.7	\$100	\$111	\$122	\$135

1986 MARKET SHARE

- All sectors less than 1%.

Note: rounding errors of \$0.1 million possible.

COMPANY NAME: CCH COMPUTAX
HEADQUARTERS: 601 N. Nash Street
 El Segundo, CA 90245
STATUS: Subsidiary of Commerce
 Clearing House
EMPLOYEES: 423 (during
 the tax season
 5,000)
PRESIDENT: Thomas G. Rolfe
FISCAL YEAR ENDS: 12/80
TELEPHONE: (213) 772-2502

HISTORY AND GROWTH

- Originally developed by CSC, the Computax programs formed the product offering of a separate corporate entity in 1965 and sold to CCH in the same year. Computax is the largest provider of computerized tax return processing services to accountants, attorneys, and banking institutions.
- Over the 1976-1980 period, revenue grew at an AAGR of 26%. 1980 revenues were affected by four acquisitions: the Multi-Tax Division of United Computing, RJ Software Systems, Professional Software Consultants, CT Law Technology.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenues (\$ millions)*	\$ 26.5	\$ 32.6	\$ 38.6	\$ 49.3	\$ 67.4
Percent Growth	8%	23%	18%	28%	37%

Net Income (\$ millions)*

----- NOT AVAILABLE -----

Percent Growth

* = to nearest \$100,000

HISTORICAL GROWTH BY SEGMENT

	<u>1976 (\$ millions)</u>	<u>1980 (\$ millions)</u>	<u>AAGR (percent)</u>
• U.S.	\$26.5	\$64.3	25%
• International	<u>-</u>	<u>3.1</u>	<u>N/A</u>
TOTAL	\$26.5	\$67.4	26%

PROJECTED GROWTH BY SEGMENT

<u>Segment</u>	<u>AAGR (percent)</u>	<u>\$ millions/Fiscal Year</u>					
		<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
• U.S. Processing (other)	20%	\$77	\$92	\$111	\$133	\$160	\$192
• International Processing	<u>30</u>	<u>4.0</u>	<u>5.2</u>	<u>6.8</u>	<u>8.9</u>	<u>11.5</u>	<u>15</u>
TOTAL COMPANY SIZE	21%	\$81	\$97	\$118	\$142	\$172	\$207

1986 MARKET SHARE

- Estimated 30% of the tax return processing market.

COMPANY NAME: TRW INFORMATION SERVICES
HEADQUARTERS: 505 City Parkway West
 Orange, CA 92668

STATUS: Division of TRW Electronics Group, part of TRW, Inc. **EMPLOYEES:** 1,500

VICE-PRESIDENT: Edward J. Brennan Jr., Vice President, GM **FISCAL YEAR ENDS:** 12/31

TELEPHONE: (714) 937-2000

HISTORY AND GROWTH

- TRW Information Services is composed of TRW Consumer Credit Data (consumer credit check) and TRW Business Credit Data Services (BCD), which operates the National Credit Information Service for the National Association of Credit Management, an association of 43,000 members. An earlier division - Validata, a service for verifying and guaranteeing checks and credit cards used at retail cash positions, was sold to Tymshare in 1979. Consumer Credit grew rapidly at 20+% per annum until 1979.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$36	\$45	\$56	\$62	\$70**

Net Income (\$ millions)* NOT AVAILABLE, BUT IT IS KNOWN THAT CCD IS
 Percent Growth PROFITABLE AND BCD BROKE EVEN IN 1980

* = to nearest \$100,000

** = INPUT estimate

SERVICE TYPE AND DELIVERY MODE

- All revenues from both services are derived from on-line inquiry/response based on access to the data bases of business and consumer credit data held on the computer in Anaheim, CA. Customer equipment includes 9,000 teleprinters, and subscribers are also serviced through 45 credit bureaus and 21 offices nationwide.

- The network used is provided by both TRW (private network) and Tymshare, and includes 1,000 low-speed line nodes in 53 cities and 58 high-speed lines covering 90,000 air miles.

INDUSTRY SECTORS SERVED

- TRW will not provide industry sector data, but distribution is the primary revenue source for CCD. Geographically, most revenues are derived from West Coast and Northeast locations:

Northeast	35%
West Coast	35
All other	<u>30</u>
	100%

INTERNATIONAL MARKETS SERVED

- None.

HISTORICAL GROWTH BY SEGMENT

	<u>Segment</u>	\$ millions/Fiscal Year				
		<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
•	CCD	\$35	\$43	\$53	\$56	\$60*
	- Percent Growth	21%	23%	23%	6%	7%*
•	BCD	\$ 1	\$ 2	\$ 3	\$ 6	\$10*
	- Percent Growth	N/A	100%	50%	100%	67%*

* INPUT estimate

PROJECTED GROWTH BY SEGMENT

	<u>Segment</u>	AAGR (percent)	\$ millions/Fiscal Year				
			<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
•	CCD	10%	\$66	\$72	\$79	\$87	\$96
•	BCD	40	14	19	27	38	53
	TOTAL COMPANY SIZE	181%	\$80	\$91	\$105	\$125	\$149
							\$179

POTENTIAL IMPACT OF ECONOMY

- The severe economic downturn has drastically impacted CCD through the lower volume use of credit cards by consumers and temporary discontinuance of credit by some sectors of the retail trade. BCD on the other hand has continued to grow, and, with only 5% of the market has "unlimited" potential. It is also far less impacted by economy variances.

POTENTIAL IMPACT OF COMPETITION

- Business Credit Data: Dun & Bradstreet (80% of the market).
- Consumer Credit Data: is currently the number one in the field with over 70 million consumers on file and 24,000 subscribers.
- BCD's main contract with NACM is equivalent to captive revenue and not subject to competitive pressure. CCD is impacted far more by the economy than by competition like Trans Union and Equifax.

POTENTIAL IMPACT OF TECHNOLOGY

- TRW Information Services can benefit hugely from economies of scale offered by new mass storage devices, cheaper disk drives, "non-stop" H/W, PCM mainframes and peripherals, cheaper terminals, and reduced long distance line costs (MCI or microwave).

SUMMARY

- TRW sees its major strengths in its long experience in building and distributing very large on-line data bases. With the contribution of BCD to profit in 1980, TRW may be reluctant to part with the division. Also the NACM contract might have to be renegotiated if TRW Information Services is sold.

COMPANY NAME: QUOTRON SYSTEMS, INC.

HEADQUARTERS: 5454 Beethoven Street
Los Angeles, CA 90066

STATUS: Public Company, OTC

EMPLOYEES: 858

PRESIDENT: Milton E. Mohr

FISCAL YEAR ENDS: 12/31

TELEPHONE: (213) 827-4600

HISTORY AND GROWTH

- Founded in 1957, Quotron provides a data base of securities quotations, analyses to the financial community on stock, commodity and option exchanges, plus S&P, Reuters and Dow Jones. Other interesting options include interoffice memo, "billboard dispatch" (allowing users to store and access proprietary data bases of information).
- Revenue growth from 1976 to 1980 of this predominantly interactive processing company was at an AAGR of 29%. (Eighty-nine percent of total revenues are from computer services.) Net income, for the whole company, grew at a 34% AAGR over the same period.

REVENUE AND NET INCOME

	Computer Services, \$ millions				
	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$ 20.5	\$ 30.2	\$ 36.0	\$ 42.8	\$ 56.8
Percent Growth	-	47%	19%	19%	33%
Net Income (\$ millions)* (Total Company)	\$ 2.8	\$ 4.9	\$ 4.5	\$ 7.0	\$ 8.9
Percent Growth	746%	74%	(8%)	57%	27%

* = to nearest \$100,000

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	1976 (\$ millions)	1980 (\$ millions)	AAGR (percent)
● Interactive Processing	\$20.1	\$52.9	27%
● Professional Services	0.4	1.1	29
● Quotron Vuset	-	2.8	N/A
	\$20.5	\$56.8	29%

PROJECTED GROWTH BY SEGMENT

<u>Segment</u>	AAGR (percent)	\$ millions/Fiscal Year					
		1981	1982	1983	1984	1985	1986
● Interactive Processing	27%	\$82.0	\$104.0	\$132.0	\$168.0	\$213.0	\$270
● Professional Services	20	1.7	2.0	2.4	2.9	3.5	4.3
● Quotron Vuset	35	4.3	5.8	7.8	10.6	14.3	18.6
TOTAL COMPANY SIZE	27%	\$88	\$112	\$142	\$182	\$231	\$290

1986 MARKET SHARE

- Quotron estimates its market share of the stock quotation market to be 70%.

COMPANY NAME: AMERICAN MANAGEMENT SYSTEMS, INC.

HEADQUARTERS: 1777 North Kent Street
Arlington, VA 22209

STATUS: Public Company, OTC

EMPLOYEES: 980

PRESIDENT: Charles Rossotti

FISCAL YEAR ENDS: 12/31

TELEPHONE: (703) 841-6000

HISTORY AND GROWTH

- AMS was founded in 1970 as a privately held corporation, becoming public in 1979. AMS offers custom systems for large businesses and state/local governments, processing and micrographics services, software products and turnkey systems for government and general businesses, and management consulting for federal programs.
- In 1981, AMS's growth in revenue and profit slowed suddenly, with net income for the nine months to September showing a loss of \$0.08 million compared to a profit of \$1.8 million a year earlier. Two acquisitions were accomplished in 1981: Executive Systems (on-line processing of associations memberships), and Florida Computer Systems (property analysis and tax collection system for local government).

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$ 12.3	\$ 21.2	\$ 31.9	\$ 48.1	\$ 58.5
Percent Growth	70%	72%	50%	51%	22%
Net Income (\$ millions)*	\$ 1.0	\$ 1.2	\$ 1.4	\$ 1.7	\$ 2.2
Percent Growth	627%	24%	20%	20%	25%

* = to nearest \$100,000

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	<u>1978 (\$ millions)</u>	<u>1980 (\$ millions)</u>	<u>AAGR (percent)</u>
● Software Products and Turnkey	-	\$ 1	N/A
● Processing Services	\$10.9	19.7	34%
● Professional Services	<u>21.0</u>	<u>37.8</u>	<u>34</u>
TOTAL	\$31.9	\$58.5	35%

PROJECTED GROWTH BY SEGMENT

<u>Segment</u>	AAGR (percent)	\$ millions/Fiscal Year					
		1981	1982	1983	1984	1985	1986
● Processing Services	25%	\$22.9	\$28.6	\$ 35.8	\$ 44.7	\$ 55.9	\$ 70.0
● Professional Services	25	40.3	50.4	63.0	78.7	98.4	125.0
● Software Products	30	1.3	1.7	2.2	2.9	3.7	4.6
● Integrated Systems	35	2	2.7	3.7	4.9	6.6	8.4
● International	<u>30</u>	<u>0.5</u>	<u>0.7</u>	<u>0.9</u>	<u>1.1</u>	<u>1.4</u>	<u>1.7</u>
TOTAL COMPANY SIZE		\$67.0	\$84.1	\$106	\$132	\$166	\$200

1986 MARKET SHARE

- All markets less than 1%.

COMPANY NAME: MANAGEMENT SCIENCE AMERICA, INC.

HEADQUARTERS: 3445 Peachtree Road, N.E.
Atlanta, GA 30326

STATUS: Public Company, OTC

EMPLOYEES: 500

PRESIDENT: William M. Graves

FISCAL YEAR ENDS: 12/31

TELEPHONE: (404) 262-2376

HISTORY AND GROWTH

- Founded in 1963 by Georgia Institute of Technology graduates, MSA offered research, consulting, and contract programming. Later in the 1960s MSA became one of the first companies to concentrate on applications software, and now has 5,500 customers on five continents.
- Over the 1976-1980 period, revenue growth has been at an AAGR of 40%, and net income at 31%. Recently, MSA signed a letter of intent to acquire the Arista Manufacturing systems division of Xerox. Users of MSA's microcomputer software number in excess of 20,000.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$ 13.5	\$ 17.4	\$ 26.2	\$ 37.7	\$ 51.7
Percent Growth	-	29%	50%	44%	37%
Net Income (\$ millions)*	\$ 1.1	\$ 0.8	\$ 1.1	\$ 2.5	\$ 3.2
Percent Growth	-	(30%)	44%	120%	29%

* = to nearest \$100,000

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	<u>1976 (\$ millions)</u>	<u>1980 (\$ millions)</u>	<u>AAGR (percent)</u>
• Software Products U.S.	\$11.9	\$40.8	35%
• Software Products Int'l.	<u>1.6</u>	<u>10.9</u>	<u>62</u>
TOTAL	\$13.5	\$51.7	40%

PROJECTED GROWTH BY SEGMENT

		AAGR (percent)						\$ millions/Fiscal Year
	<u>Segment</u>		<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
●	Software Products U.S.	35%	\$ 55	\$ 74	\$100	\$135	\$182	\$24
●	Software Products Int'l.	<u>52</u>	<u>17</u>	<u>27</u>	<u>41</u>	<u>62</u>	<u>95</u>	<u>14</u>
	TOTAL COMPANY SIZE	40%	\$ 72	\$101	\$141	\$197	\$277	\$38

1986 MARKET SHARE

- Software Products (Application): 7%.

COMPANY NAME: FIRST DATA RESOURCES, INC.

HEADQUARTERS: 7301 Pacific Street
Omaha, NE 68114

STATUS: Subsidiary of AMEX

EMPLOYEES: 2,100

PRESIDENT: Bob Masterson

FISCAL YEAR ENDS: 12/31

TELEPHONE: (402) 399-3950

HISTORY AND GROWTH

- Formed as a private corporation in 1971 to provide credit card processing services and to market a software package for a bank card processing system, (spin-off from Mid-America Bankcard Association), FDR was purchased by American Express for approximately \$50 million in January 1980.

REVENUE AND NET INCOME

	<u>INPUT Estimates</u>				
	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$ 30	\$ 34	\$ 40	\$ 46	\$ 50
Percent Growth		15%	15%	15%	9.8%
Net Income (\$ millions)*	----- NOT AVAILABLE -----				
Percent Growth					

* = to nearest \$100,000

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	<u>1978 (\$ millions)</u>	<u>1980 (\$ millions)</u>	<u>AAGR (percent)</u>
• Processing Services	\$40	\$49.1	11%
• Software Products	-	0.9	N/A
	\$40	\$50	12%

* INPUT estimate

PROJECTED GROWTH BY SEGMENT

	<u>Segment</u>	AAGR (percent)	\$ millions/Fiscal Year					1986 \$
			1981	1982	1983	1984	1985	
●	Processing Services	12%	\$55	\$62	\$69	\$77	\$87	\$95
●	Software Products	35	1	2	2	3	3	—
	TOTAL COMPANY SIZE	12.5%	\$56	\$64	\$71	\$80	\$90	\$105

1986 MARKET SHARE

- FDR is the largest credit card processing services vendor in the U.S. By 1986, market share is estimated to be 25%.

COMPANY NAME: SYSTEMS CONSULTANTS, INC.
HEADQUARTERS: 1053, 31st Street, N.W.
 Washington, DC 20007
STATUS: Privately held **EMPLOYEES:** 1,450
PRESIDENT: Jose J. Yglesias **FISCAL YEAR ENDS:** 11/30
TELEPHONE: (202) 342-4000

HISTORY AND GROWTH

- Syscon specializes in DOD-related systems engineering and software services. Approximately 88% of the business can be classified as computer services.
- Revenue growth over the 1976-1980 period was at an AAGR of 25%. Contracts are generally in the \$1 million plus size. Significant contracts include an \$11 million one for the Navy (three-year duration) for software design/systems integration. Syscon specializes in ship-based combat weapons systems.

REVENUE AND NET INCOME

	\$ millions, Computer Services Only				
	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$19	\$25	\$31	\$42	\$46
Percent Growth	-	32%	24%	35%	10%
Net Income (\$ millions)*		----- NOT AVAILABLE -----			
Percent Growth					

* = to nearest \$100,000

REVENUE BY SEGMENT

<u>Segment</u>	<u>Percent</u>	<u>Revenue Value 1980, \$ millions</u>
- Professional Services	99%	45.6%
- Turnkey, Software Products, and Processing Services	*	0.4

* Management expects this group to contribute 10% in 1981.

PROJECTED GROWTH BY SEGMENT

		AAGR (percent)	\$ millions/Fiscal Year					
	Segment		1981	1982	1983	1984	1985	1986
●	Professional Services	35%	\$61.2	\$82.6	\$111	\$150	\$203	\$271
●	Turnkey and Other	30	6.8	9	11	15	19	24
	TOTAL COMPANY SIZE	35%	\$68	\$92	\$122	\$165	\$222	\$295

1986 MARKET SHARE

- Professional Services 1.8%.

COMPANY NAME: SEISMOGRAPH SERVICES CORPORATION

HEADQUARTERS: 6200 E. 41st Street
Tulsa, OK 74102

STATUS: Subsidiary of Raytheon

EMPLOYEES: 4,500

PRESIDENT: R. C. Anderson

FISCAL YEAR ENDS: 12/31

TELEPHONE: (918) 627-3330

HISTORY AND GROWTH

- Formed in 1935 and acquired by Raytheon in 1966, Seismographic offers radio-location, well logging, seismic surveys, seismic data processing (onsite and batch), and software products (Phoenix system) in the U.S., South America, Western Europe, and the Far East.
- Raytheon does not release financial data on subsidiaries.

REVENUE AND NET INCOME

	<u>INPUT Estimates</u>				
	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Total Service Revenue (\$ millions)*	\$ 30	\$ 49	\$ 81	\$ 133	\$ 200
Percent Growth	-----	-----	65% Average	-----	-----
Net Income (\$ millions)*	----- NOT AVAILABLE -----				
Percent Growth	-----	-----	-----	-----	-----

* = to nearest \$100,000

HISTORICAL GROWTH BY SEGMENT

- Ninety-eight percent of computer services revenue are estimated to come from processing services and 2% from the sale of software products to oil companies. A guesstimate of historical growth follows:

<u>Segment</u>	1978 (\$ millions)	1980 (\$ millions)	AAGR (percent)
- Processing Services	\$12.7	\$34.5	65%
- Software Products	-	0.5	N/A
	\$12.7	\$35	66%

PROJECTED GROWTH BY SEGMENT

<u>Segment</u>	AAGR (percent)	\$ millions/Fiscal Year					19
		1981	1982	1983	1984	1985	
● Processing Services	18%	\$56.9	\$60	\$60	\$72	\$101	\$1
● Software Products	27	0.6	1	1	1	2	—
TOTAL COMPANY SIZE	18%	\$57.5	\$61	\$61	\$73	\$103	\$1

1986 MARKET SHARE

- Estimated 5% of seismic processing.

COMPANY NAME: REYNOLDS AND REYNOLDS COMPANY

HEADQUARTERS: 800 Germantown Street
Dayton, OH 45407

STATUS: Public Company, OTC

EMPLOYEES:

3,431 (total co.)
1,300 computer
services

PRESIDENT: Robert G. Timberlake

FISCAL YEAR ENDS: 9/30

TELEPHONE: (513) 443-2000

HISTORY AND GROWTH

- Reynolds was founded in 1866 to manufacture and distribute standard and custom business forms. Batch and remote computing services, turnkey systems, and microprocessor based terminals are also offered now. Computer systems and services now account for nearly 60% of total company turnover.
- Over the 1976-1980 period, revenue grew at an AAGR of 37% (and in excess of 35% in each of the years 1977-1979). In 1980, a significant drop in earnings and revenue growth occurred as the number of automotive dealers going out of business increased (1,870). The deterioration continued in 1981 when computer systems revenues fell for the first time.

REVENUE AND NET INCOME

<u>Computer Systems Only</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$35.4	\$48.4	\$71.0	\$102.4	\$122.6
Percent Growth	21%	37%	47%	44%	20%

Total Company

Net Income (\$ millions)*	\$11.0	\$14.8	\$12.0	\$ 9.8	\$ 8.0
Percent Growth	(26%)	24%	22%	23%	30%

* = to nearest \$100,000

HISTORICAL GROWTH BY SEGMENT

<u>Computer Services</u>	<u>1978 (\$ millions)</u>	<u>1980 (\$ millions)</u>	<u>AAGR (percent)</u>
● Processing Services	\$45.1	\$ 45.4	-
● Integrated Systems	16.0	52.7	81%
● Other (Terminal Sales)	<u>9.9</u>	<u>24.5</u>	<u>57</u>
	\$71.0	\$122.6	31%

PROJECTED GROWTH BY SEGMENT

	<u>Segment</u>	<u>AAGR (percent)</u>	<u>\$ millions/Fiscal Year</u>				
			<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
●	Processing Services	14%	\$ 45.4	\$ 38	\$ 43	\$ 53	\$ 68
●	Integrated Systems	19	41.0	44	49	62	79
●	Terminal Sales	<u>25</u>	<u>26.0</u>	<u>32</u>	<u>40</u>	<u>51</u>	<u>63</u>
	SUBTOTAL		\$112.4	\$114	\$132	\$166	\$210
●	International	27	0.9	1.1	1.4	1.8	2.2
●	Other (business forms)	<u>15</u>	<u>99</u>	<u>114</u>	<u>131</u>	<u>151</u>	<u>173</u>
	TOTAL COMPANY	<u>17%</u>	<u>\$212</u>	<u>\$229</u>	<u>\$264</u>	<u>\$319</u>	<u>\$385</u>

1986 MARKET SHARE

- The total market for R&R's largest service (automotive) will shrink in 1982. R&R's share of the market will remain constant at 12%.

COMPANY NAME: C.A.C.I., INC.

HEADQUARTERS: 1815 North Fort Myer Drive
Arlington, VA 22209

STATUS: Public Company, OTC **EMPLOYEES:** 1,357

PRESIDENT: Dr. William W. Fain **FISCAL YEAR ENDS:** 6/30

TELEPHONE: (703) 841-7800

HISTORY AND GROWTH

- Founded in 1962 as California Analysis Centers, by RAND Corp. developers of the SIMSCRIPT language, C.A.C.I. specializes in solving managerial, logistics, and operational problems of government (DOD), commerce, and industry through research, analysis, and computer software techniques. Market research, demographics, decision graphics, simulating, DBMS, energy and software products are the main areas of activity.
- From 1976 to 1980, revenue grew at an AAGR of 45% and net income at 46%. The improvement continued in 1981 when C.A.C.I. had revenues of \$58.5 million (up 68%) and net income of \$2.3 million (up 70%), the most successful in its history.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$ 7.7	\$10.3	\$12.4	\$ 19.8	\$34.7
Percent Growth	40%	34%	21%	59%	75%
Net Income (\$ millions)*	\$ 0.3	\$ 0.3	\$ 0.5	\$ 1.2	\$ 1.4
Percent Growth	31%	0	92%	129%	9%

* = to nearest \$100,000

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	<u>1979 (\$ millions)</u>	<u>1981 (\$ millions)</u>	<u>AAGR (percent)</u>
• U.S.	\$16.9	\$51.2	80%
• International	<u>2.8</u>	<u>7.3</u>	<u>62</u>
TOTAL	\$19.7	\$58.5	72%

PROJECTED GROWTH BY SEGMENT

<u>Segment</u>	<u>AAGR (percent)</u>	<u>\$ millions/Fiscal Year</u>					
		<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
• U.S.	45%	\$51.2	\$84	\$126	\$183	\$248	\$321
• International	<u>50</u>	<u>7.3</u>	<u>10.9</u>	<u>16.4</u>	<u>24.6</u>	<u>36.9</u>	<u>55.8</u>
TOTAL COMPANY SIZE	46%	\$58.5	\$95	\$140	\$208	\$285	\$390

1986 MARKET SHARE

- Five percent estimated.

COMPANY NAME: TELECREDIT, INC.

HEADQUARTERS: 1901 Avenue of the Stars
Los Angeles, CA 90067

STATUS: Public Company, OTC **EMPLOYEES:** 711

PRESIDENT: Lee A. Ault **FISCAL YEAR ENDS:** 4/30

TELEPHONE: (213) 277-4061

HISTORY AND GROWTH

- Telecredit was incorporated in 1961 to provide computerized check credit verification services in California. Check guarantee, collection services, POS support, and credit card authorization were subsequently added. There were no profits for the entire first decade, more than 100 consecutive months of losses. Since then Telecredit has developed many innovative products (and continues to do so). Nineteen companies have paid \$4 million in patent revenue to Telecredit including IBM, NCR, Burroughs, and Docutel.
- Over the 1976-1980 period, revenue grew by an AAGR of 29%; from 1980 to 1981 it grew 19% due to a lower transaction volume. Over the 1976-1981 period, net income grew 23%.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$ 13.7	\$19.6	\$24.7	\$31.8	\$38.4
Percent Growth	48%	-43%	26%	29%	21%
Net Income (\$ millions)*	\$ 1.0	\$ 1.7	\$ 0.8	\$ 1.5	\$ 0.7
Percent Growth	124%	63%	(51%)	80%	(50%)

* = to nearest \$100,000

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	<u>1977 (\$ millions)</u>	<u>1981 (\$ millions)</u>	<u>AAGR (percent)</u>
• Checking Services	\$12.4	\$28.9	24%
• Credit Card Services	6.7	14.9	22
• Patent Licensing	0.3	0.6	19
• Interest Income	0.3	1.2	41

PROJECTED GROWTH BY SEGMENT

<u>Segment</u>	<u>AAGR (percent)</u>	<u>\$millions/Fiscal Year</u>					
		<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
• Checking Services	22%	\$28.9	\$35	\$43	\$52	\$64	\$78
• Credit Card Services	6	14.9	15	16	17	18	20
• Patent Licensing	63	0.6	1.2	2.4	3.6	5	7
• Interest Income	40	1.2	1.7	2.4	3.3	4.6	6
TOTAL COMPANY SIZE	20%	\$45.6	\$53	\$64	\$76	\$92	\$112

COMPANY NAME: CINCOM SYSTEMS, INC.

HEADQUARTERS: 2300 Montana Avenue
Cincinnati, OH 45211

STATUS: Privately held

EMPLOYEES: 600

PRESIDENT: Tom Nies

FISCAL YEAR ENDS: 9/30

TELEPHONE: (513) 662-2300

HISTORY AND GROWTH

- Incorporated in Ohio in 1968, Cincom provides data base management, data communications and related software packages, and consulting services. The most notable package is TOTAL, the most successful DBMS other than those sold by hardware manufacturers, installed on over 2,000 mainframes and 1,500 minicomputers. ENVIRON/I, a teleprocessing monitor has reached 1,500 installations. CINCOM has begun to target applications software markets, since they estimate that any further penetration of the systems software market would require a larger sales force.
- Revenue from 1976 to 1980 grew at an AAGR of 26%. Net income data is not available.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$ 14.3	\$ 18.6	\$ 24.8	\$ 29.6	\$ 35.9
Percent Growth	37%	31%	33%	19%	21%

Net Income (\$ millions)*

----- NOT AVAILABLE -----

Percent Growth

* = to nearest \$100,000

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	<u>1980 (\$ millions)</u>	<u>1981 (\$ millions)*</u>	<u>AAGR (percent)</u>
● U.S. Software Products	\$16.1	\$21.3	32%
● International	<u>19.8</u>	<u>26.1</u>	<u>32</u>
	\$35.9	\$47.4	32%

* INPUT estimate

PROJECTED GROWTH BY SEGMENT

<u>Segment</u>	AAGR (percent)	\$ millions/Fiscal Year					
		<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
● U.S. Software Products	32%	\$21.3	\$28.1	\$37.1	\$49.0	\$64.7	\$81.6
● International Software Products	32	<u>26.1</u>	<u>34.5</u>	<u>45.5</u>	<u>60.0</u>	<u>79.2</u>	<u>100.0</u>
TOTAL COMPANY SIZE	32%	\$47.4	\$62.6	\$82.6	\$109	\$144	\$176

1986 MARKET SHARE

- Two percent of systems software market, 50% of the independent DBMS market.

COMPANY NAME: SCIENCE APPLICATIONS, INC.

HEADQUARTERS: 1200 Prospect Street
La Jolla, CA 92137

STATUS: Privately held

EMPLOYEES: 3,300

PRESIDENT: J. R. Beyster

FISCAL YEAR ENDS: 1/31

TELEPHONE: (714) 454-3811

HISTORY AND GROWTH

- Founded in 1969, SAI offers technical services in the fields of applied science, military software development, and military systems. Recently SAI has expanded into the energy, environment, and health sectors. SAI also assembles custom built, special purpose computer systems and manufactures products which are the outgrowth of software development.
- Between 1976 and 1980, SAI grew revenue at an AAGR of 35% and net income at an AAGR of 30%.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$45.9	\$59.9	\$81.4	\$110	\$151
Percent Growth	44%	31%	36%	35%	37%
Net Income, (\$ millions)*	\$ 1.2	\$ 1.3	\$ 1.9	\$ 2.4	\$ 3.4
Percent Growth	48%	8%	46%	24%	43%

* = to nearest \$100,000

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	<u>1976 (\$ millions)</u>	<u>1980 (\$ millions)</u>	<u>AAGR (percent)</u>
• Total Company	\$45.9	\$187	42%
• Total Computer Services	22.2	37.4*	14
- Professional Services (including education)	15.5*	18.7*	5
- Turnkey Systems	6.7*	18.7*	29

* INPUT estimate

PROJECTED GROWTH BY SEGMENT

<u>Segment</u>	<u>AAGR (percent)</u>	<u>\$ millions/Fiscal Year</u>					
		<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
• Professional Services	15%	\$ 22	\$ 25	\$ 28	\$ 33	\$ 38	\$ 44
• Turnkey Systems	25	23	29	36	46	57	71
COMPUTER SERVICES TOTAL	20%	\$ 45	\$ 54	\$ 64	\$ 79	\$ 95	\$111
TOTAL COMPANY		<u>\$225</u>	<u>\$270</u>	<u>\$320</u>	<u>\$395</u>	<u>\$475</u>	<u>\$571</u>

1986 MARKET SHARE

- Less than 1%.

COMPANY NAME: DIGICON, INC.
HEADQUARTERS: 3701 Kirby Drive
 Houston, TX 77098

STATUS: Public Company, AMEX **EMPLOYEES:** 900
 (Computer Services 511)
PRESIDENT: Edward R. Prince Jr. **FISCAL YEAR ENDS:** 7/31
TELEPHONE: (713) 526-5611

HISTORY AND GROWTH

- Formed in 1965 as Digital Consultants Inc., and incorporated in Delaware in 1969 as Digicon, the company supplies geophysical services to the petroleum industries, including seismic data gathering, processing, interpretation, and the sale of proprietary seismic data. Eight-three percent of company revenues are attributable to computer services.
- Revenue growth during the 1976-1981 period was at an AAGR of 19.7%. Net income grew at an AAGR of 90%.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Total Company Revenue (\$ millions)*	\$26.2	\$23.7	\$29.1	\$38.7	\$ 53.7
Percent Growth	1%	(10%)	23%	33%	39%
Computer Services Revenue	\$21.7	\$19.7	\$24.1	\$32.1	\$ 44.6
Net Income (\$ millions)*	\$ 0.18	(\$0.12)	\$ 0.27	\$ 0.46	\$ 2.34
Percent Growth	N/A	N/A	N/A	70%	408%

* = to nearest \$100,000

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	1978 (\$ millions)	1981 (\$ millions)	AAGR (percent)
● Processing Services	\$17.6	\$51	42%
● Software Products	-	1.8	N/A
● Integrated Systems	1.1	21.6	170
● International	<u>5.4</u>	<u>15.2</u>	<u>41</u>
SERVICES TOTAL	\$24.1	\$89.6	55%

PROJECTED GROWTH BY SEGMENT

<u>Segment</u>	AAGR (percent)	\$ millions/Fiscal Year				
		1981	1982	1983	1984	1985
● Processing Services	10%	\$51	\$ 56.1	\$ 61.7	\$ 67.9	\$ 74.7
● Software Products	35	1.8	2.4	3.3	4.4	6.0
● Integrated Systems	33	21.6	28.7	38.2	50.8	67.6
● International	<u>19</u>	<u>15.2</u>	<u>18.1</u>	<u>21.5</u>	<u>25.6</u>	<u>30.5</u>
COMPUTER SERVICES TOTAL	20%	\$89.6	\$105	\$125	\$149	\$179
TOTAL COMPANY		<u>\$108</u>	<u>\$130</u>	<u>\$156</u>	<u>\$187</u>	<u>\$224</u>

1986 MARKET SHARE

Five percent of the geophysical services market.

COMPANY NAME: APPLIED DATA RESEARCH, INC.

HEADQUARTERS: Route 206 and Orchard Road, CN-8
Princeton, NJ 08540

STATUS: Public Company, AMEX

EMPLOYEES: 675

PRESIDENT: John R. Bennett

FISCAL YEAR ENDS: 12/31

TELEPHONE: (201) 874-9000

HISTORY AND GROWTH

- Founded in 1959, ADR is a leading supplier of systems software products. Originally ADR concentrated on utility products until, in 1978, it bought the DATACOM DBMS products from Insite Corp. ADR also supplies integrated systems, professional services, and applications software products.
- Revenue growth through the 1976-1980 period was at an AAGR of 30% and net income dropped at an AAGR of 11%. Purchases of six European marketing companies (mainly from CAP-CPP), expenses associated with the DBMS products purchase, and development of a CABLE TV system (turnkey) all contributed to this unfavorable result. European revenues accounted for 39% of total in 1980.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$ 12.9	\$ 16.9	\$ 22.6	\$ 28.7	\$ 37.1
Percent Growth	34%-	-	31%	34%	27%
					29%
Net Income (\$ millions)*	\$ 1.44	\$ 1.64	\$ 1.98	\$ 0.53	\$ 0.91
Percent Growth	233%	14%	21%	(73%)	72%

* = to nearest \$100,000

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	<u>1977 (\$ millions)</u>	<u>1980 (\$ millions)</u>	<u>AAGR (percent)</u>
● Software Products (U.S.)	\$ 7.1	\$18.3	37%
● Professional Services	2.9	2.9	-
● Turnkey	-	0.5	N/A
● Other (interest)	0.2	0.9	65
● International	<u>6.7</u>	<u>14.5</u>	<u>29</u>
	\$16.9	\$37.1	30%

PROJECTED GROWTH BY SEGMENT

	<u>Segment</u>	<u>AAGR (percent)</u>	<u>\$ millions/Fiscal Year</u>				
			<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
●	Software Products	35%	\$24.7	\$33.4	\$45.0	\$ 60.8	\$ 82.1
●	Professional Services	10	3.2	3.5	3.9	4.2	4.7
●	Turnkey	35	0.6	0.9	1.2	1.7	2.2
●	International	29	<u>18.7</u>	<u>24.1</u>	<u>31.1</u>	<u>40.2</u>	<u>51.8</u>
	TOTAL COMPANY SIZE		\$47.2	\$61.9	\$81.2	\$107	\$141
							\$186

1986 MARKET SHARE

- Systems software products 1.2%; other less than 1%.

COMPANY NAME: SYSTEMS & COMPUTER TECHNOLOGY, INC.

HEADQUARTERS: Great Valley Corporate Center
4 Country View Road
Malvern, PA 19355

STATUS: Privately held

EMPLOYEES: 1,000

PRESIDENT: Frederick A. Gross

FISCAL YEAR ENDS: 9/30

TELEPHONE: (215) 647-5930

HISTORY AND GROWTH

- Systems and Computer Technology Corporation (SCT) was founded in 1968 to provide professional services and facilities management to educational institutions, both public and private, and to state and local governments. All of SCT's revenues derive from these two markets and all are earned within the U.S.

PROJECTED GROWTH BY SEGMENT

		AAGR (percent)	1981	1982	1983	1984	1985	1986
•	Professional Services	22%	\$45	\$55	\$67	\$82	\$99	\$122
	TOTAL COMPANY SIZE	22%	\$45	\$55	\$67	\$82	\$99	\$122

1986 MARKET SHARE

- Less than 1%.

COMPANY NAME: SYSTEMATICS, INC.
HEADQUARTERS: 212 Center Street
 Little Rock, AR 72201
STATUS: 70% owned Subsidiary of Stephens Inc.
EMPLOYEES: 1,017
PRESIDENT: Walter V. Smiley
FISCAL YEAR ENDS: 5/31/80
TELEPHONE: (501) 372-6141

HISTORY AND GROWTH

- Founded in 1968, Systematics Inc. provides facilities management services to large commercial banks with up to \$900 million in assets. It also offers banking applications software products and processing services.
- Revenues grew over the 1976-1980 period by an AAGR of 36% and net income rose at a 49.5% AAGR over the same period. Five percent of 1980 revenues were from captive (Stephens Inc.) sources. There are no foreign revenues and all 1980 revenues were derived from FM processing contracts with commercial banks and financial institutions. The Software Marketing Division was established in June 1981.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$8.9	\$13.3	\$18.2	\$24.4	\$30.3
Percent Growth	50%	- 37%	37%	34%	24%
Net Income (\$ millions)*	\$0.27	\$ 0.49	\$ 0.67	\$ 0.96	\$ 1.3
Percent Growth	-	83%	38%	43%	39%

* = to nearest \$100,000

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	<u>1976 (\$ millions)</u>	<u>1980 (\$ millions)</u>	<u>AAGR (percent)</u>
• FM Processing Services	\$8.9	\$30.3	36%

PROJECTED GROWTH BY SEGMENT

<u>Segment</u>	<u>AAGR (percent)</u>	<u>\$ millions/Fiscal Year</u>					
		<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
• FM Processing	25%	\$36.0	\$45.0	\$56.3	\$70.3	\$87.9	\$110
• Software Products	45	0.3	0.4	0.6	0.9	1.3	1.9
TOTAL COMPANY SIZE	25%	\$36.3	\$45.4	\$56.9	\$71.2	\$89.2	\$112

1986 MARKET SHARE

- All markets less than 1%.

COMPANY NAME: ADVO SYSTEMS, INC.

HEADQUARTERS: 239 West Service Road
Hartford, CT 06101

STATUS: Privately held **EMPLOYEES:** 1,200

PRESIDENT: John A. Valentine **FISCAL YEAR ENDS:** 8/30

TELEPHONE: (203) 525-9101

HISTORY AND GROWTH

- Advo provides processing services for direct mail operations, serving such customers as Sears, Montgomery Ward, Lever Bros., etc. It has in the past worked with the U.S. government on Census preparation and derives 100% of its income from the U.S.
- Advo is expanding its geographic coverage of all major U.S. markets, opening "factories" on an as-needed basis to serve its customers.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1980</u>	<u>1981</u>
Revenue (\$ millions)*	N/A	N/A	N/A	\$ 18	\$ 30
Percent Growth				N/A	66
Net Income (\$ millions)*			----- NOT AVAILABLE -----		
Percent Growth					

* = to nearest \$100,000

PROJECTED GROWTH BY SEGMENT

	AAGR (percent)	\$ millions/Fiscal Year					
		<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
● Processing Services	22%	\$34	\$45	\$55	\$66	\$81	\$99
TOTAL COMPANY SIZE	22%	\$37	\$45	\$55	\$66	\$81	\$99

COMPANY NAME: FAST-TAX
HEADQUARTERS: 2395 Midway Road
 Carrollton, TX 75006
STATUS: Privately Owned **EMPLOYEES:** 1,250
PRESIDENT: Francis Winn **FISCAL YEAR ENDS:** 6/30
TELEPHONE: (214) 934-7000

HISTORY AND GROWTH

- Founded in 1964, Fast-Tax has provided since its inception computerized tax return processing services to individuals, corporate entities, partnerships, fiduciaries, and expatriates. Principal clients are major CPA firms, law firms, and Fortune 1,000 corporations.
- INPUT estimates that revenue growth from 1976 to 1980 was at an AAGR of 35%. This grew to 45% for the 1980-1981 period.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$ 9.9	\$ 13.3	\$ 18.5	\$ 23.9	\$ 33
Percent Growth	-	34%	39%	29%	38%
Net Income (\$ millions)*	----- NOT AVAILABLE -----				
Percent Growth					

* = to nearest \$100,000

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	<u>1976 (\$ millions)</u>	<u>1980 (\$ millions)</u>	<u>AAGR (percent)</u>
• Processing Services	\$ 9.9	\$ 33	35%

PROJECTED GROWTH BY SEGMENT

										\$ millions/Fiscal Year
		AAGR (percent)		1981	1982	1983	1984	1985	1986	1987
●	Processing Services	37%		\$48	\$66	\$90	\$123	\$169	\$231	
	TOTAL COMPANY SIZE	37%		\$48	\$66	\$90	\$123	\$169	\$231	

1986 MARKET SHARE

- RCS processing market 1.8%.

COMPANY NAME: DYATRON CORPORATION
HEADQUARTERS: 210 Automation Way
 P.O. Box 235
 Birmingham, AL
STATUS: Public Company, OTC **EMPLOYEES:** 525 (March 1981)
PRESIDENT: John A. Lotz **FISCAL YEAR ENDS:** 12/31
TELEPHONE: (215) 956-7500

HISTORY AND GROWTH

- Computerized Automotive Reporting Service (CARS) was founded in 1964 to provide management information systems to automobile dealers. The name was changed to DYATRON in 1980. Automotive dealer integrated systems and remote computing services form 75% of the company's revenues, with software products to the medical sector (MICOMP) and financial software, services and turnkey systems (COMPUTECH) recently added. DYATRON's strategy is to acquire vertical market products (with or without the company that owns them) rather than to develop such products internally.
- Revenue growth in the 1976-1980 period was at an AAGR of 25% and net income at an AAGR of 26%. In 1981, this progress was stopped with revenues projected at \$36.8 million (17%) and a net loss projected at \$1.5 million.

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$14.0	\$16.5	\$20.2	\$25.8	\$34.4
Percent Growth	62%	18%	22%	28%	33%
Net Income (\$ millions)*	\$ 0.58	\$ 1.03	\$ 1.21	\$ 1.41	\$ 1.47
Percent Growth	91%	77%	17%	5%	5%

* = to nearest \$100,000

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	1976 (\$ millions)	1980 (\$ millions)	AAGR (percent)
● Processing Services	\$10.1	\$21.9	21%
● Professional Services	-	0.47	N/A
● Software Products	-	0.8	N/A
● Integrated Systems	-	1.5	N/A
● Other (equipment rental, unconsolidated affiliates)	2.8 <u>1.1</u>	6.9 <u>2.8</u>	25 <u>26</u>
TOTAL	\$14	\$34.4	25%

PROJECTED GROWTH BY SEGMENT

<u>Segment</u>	AAGR (percent)	\$ millions/Fiscal Year						1986 (\$ billions)
		1981	1982	1983	1984	1985	1986	
● Processing Services	15%	\$22.6	\$26.0	\$29.9	\$34.4	\$39.5	\$45.0	
● Professional Services	30	0.5	0.6	0.8	1.1	1.4	1.7	
● Software Products	35	1.2	1.6	2.2	3.0	4.0	5.0	
● Integrated Systems	28	1.9	2.4	3.1	4.0	5.1	6.2	
● Other (equipment rental)	15	7.7	8.9	10.2	11.7	13.5	15.5	
● International	<u>26</u>	<u>2.9</u>	<u>3.7</u>	<u>4.6</u>	<u>5.8</u>	<u>7.3</u>	<u>9.0</u>	
TOTAL COMPANY SIZE		\$36.8	\$43.2	\$50.8	\$60.0	\$70.8	\$84.0	

1986 MARKET SHARE

- All markets less than 1%.

COMPANY NAME: BOLT BERANEK & NEWMAN, INC.

HEADQUARTERS: 10 Moulton Street
Cambridge, MA 02238

STATUS: Public Corporation, AMEX **EMPLOYEES:** 1,290

PRESIDENT: Stephen R. Levy **FISCAL YEAR ENDS:** 6/30

TELEPHONE: (617) 491-1850

HISTORY AND GROWTH

- Bolt Beranek and Newman, Inc. (BBN) is a consulting and research firm specializing in electronics, communications, and acoustic technologies. BBN has three wholly-owned business products subsidiaries which manufacture and market instruments, minicomputers and a new electronic mail software package. BBN derives 46% of its revenues from U.S. Department of Defense contracts with 16% of revenues coming from other U.S. government sources, principally the Department of Education.
- BBN recently agreed with Olivetti to work together to develop international markets in the data communications field. Olivetti will distribute BBN's packet switching data network software products outside of North America.

REVENUE AND NET INCOME

	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
Revenue (\$ millions)*	\$26.6	\$30.2	\$37.7	\$46.9	\$55
Percent Growth	-	14%	25%	24%	17%
Net Income (\$ millions)*	\$(0.918)	\$(0.397)	\$ 3.11	\$ 2.81	\$ 0.939
Percent Growth	-	-	-	(11%)	(67%)

* = to nearest \$100,000

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	1977 (\$ millions)	1981 (\$ millions)	AAGR (percent)
• Professional Services	\$10.6	\$22	20%
• Hardware and Other	\$16	\$33	20%

PROJECTED GROWTH BY SEGMENT

<u>Segment</u>	AAGR (percent)	\$ millions/Fiscal Year				
		1981	1982	1983	1984	1985
• Professional Services	20%	\$22	\$24	\$29	\$35	\$42
• Other	25	33	41	52	65	81
TOTAL COMPANY SIZE	22%	\$55	\$65	\$81	\$100	\$123

MARKET SHARE

- All markets less than 1%.

COMPANY NAME: PANSOPHIC SYSTEMS, INC.

HEADQUARTERS: 709 Enterprise Drive
Oakbrook, IL 60521

STATUS: Public Corporation, OTC

EMPLOYEES: 305

PRESIDENT: David J. Eskra

FISCAL YEAR ENDS: 4/30

TELEPHONE: (312) 986-6000

HISTORY AND GROWTH

- Founded in 1969, Pansophic (PSI) develops and markets systems software for use on IBM and PCM mainframes. It has recently added some applications products to its offerings. PSI sells to a very high quality customer base of over 5,000 customers in 45 countries with 35% of revenues deriving from foreign sources.
- PSI recently acquired exclusive rights to two more systems products which are now undergoing development for release in mid-1982. A late 1981 stock offering was used to retire a \$6.8 million outstanding debt. Revenues for six months ended October 31, 1981 were \$15.5 million, up 26% from the comparable period in 1980.

REVENUE AND NET INCOME

	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
Revenue (\$ millions)*	\$ 7.1	\$ 11.0	\$ 16.7	\$ 23.2	\$ 30.1
Percent Growth	-	54%	52%	39%	29%
Net Income (\$ millions)*	\$ 0.8	\$ 0.9	\$ 1.3	\$ 1.5	\$ 2.5
Percent Growth	-	17%	42%	16%	61%

* = to nearest \$100,000

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	<u>1977 (\$ millions)</u>	<u>1981 (\$ millions)</u>	<u>AAGR (percent)</u>
• Software Products	\$4.6	\$19.6	44%
• International	<u>2.5</u>	<u>10.5</u>	<u>43</u>
TOTAL	\$7.1	\$30.1	44%

PROJECTED GROWTH BY SEGMENT

<u>Segment</u>	AAGR (percent)	<u>\$ millions/Fiscal Year</u>					
		<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
• Software Products	35%	\$19.6	\$26.5	\$35.7	\$ 48.2	\$65.1	\$ 82
• International	<u>35</u>	<u>10.5</u>	<u>14.2</u>	<u>19.1</u>	<u>25.8</u>	<u>34.9</u>	<u>46</u>
TOTAL COMPANY SIZE	35%	\$30.1	\$40.7	\$54.8	\$ 74	\$100	\$131

1986 MARKET SHARE

- Systems software market 1.4%.

COMPANY NAME: KIRCHMAN CORPORATION
HEADQUARTERS: 711 Semoran Boulevard
Altamonte Springs, FL 32701
STATUS: Privately Held **EMPLOYEES:** 1,000
PRESIDENT: Kenneth Kirchman **FISCAL YEAR ENDS:** 3/31
TELEPHONE: (305) 831-3001

HISTORY AND GROWTH

- Founded in 1968, Kirchman is a designer and supplier of financial data processing software systems to the banking and finance industries. Kirchman also offers some processing services (remote batch).
- Kirchman is aggressively expanding its software offerings including an Automated Teller Machine package in early 1982. Personnel growth has been dramatic, expanding from 350 in 1979 to over 1,000 in 1981.

REVENUE AND NET INCOME

	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
Revenue (\$ millions)*	\$13	\$16	\$20**	\$32
Percent Growth	-	23%	25%	60%
Net Income (\$ millions)*		----- NOT AVAILABLE -----		
Percent Growth				

* = to nearest \$100,000

** INPUT estimate

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	<u>1978</u>	<u>1981</u>	<u>AAGR Percent</u>
• Software Products	\$ 11	\$27	35%
• Processing Services	<u>2</u>	<u>5</u>	<u>35</u>
TOTAL	\$ 13	\$32	35%

PROJECTED GROWTH BY SEGMENT

<u>Segment</u>	AAGR (percent)	\$ millions/Fiscal Year					
		<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
• Processing Services	25%	\$ 5	\$ 6.3	\$ 7.8	\$ 9.8	\$ 12.2	\$ 15.2
• Software Products	<u>35</u>	<u>27</u>	<u>36.5</u>	<u>49.2</u>	<u>66.4</u>	<u>89.7</u>	<u>120.0</u>
TOTAL COMPANY SIZE	34%	\$32	\$42.8	\$47.0	\$78.2	\$101.9	\$130.0

1986 MARKET SHARE

- Applications software 2%.

COMPANY NAME: CULLINANE DATABASE SYSTEMS, INC.

HEADQUARTERS: 40 Blue Hill Drive
Westwood, MA 02090

STATUS: Public Corporation, OTC

EMPLOYEES: 410

PRESIDENT: John Cullinane

FISCAL YEAR ENDS: 4/30

TELEPHONE: (617) 326-7700

HISTORY AND GROWTH

- Founded in 1968, Cullinane Database Systems, Inc. (CDS) designs, markets, and supports database management, EDP audit and retrieval, and applications software products. CDS earns 20% of its revenues from international sources and is expanding its presence abroad. Its IDMS system is widely regarded as one of the best available.
- CDS increased R&D expenditures by 80% from 1980 to 1981. CDS expects to introduce a color graphics package in early 1982 as part of its IDMS line. Revenues for the first nine months of fiscal year 1982 were up 68% over the same period for fiscal year 1981 to \$34.6 million, with net income up 80% to \$5.4 million.

REVENUE AND NET INCOME

	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
Revenue (\$ millions)*	\$4.6	\$ 7.9	\$12.0	\$17.7	\$29.4
Percent Growth	-	71%	51%	48%	66%
Net Income (\$ millions)*	\$0.5	\$ 1.0	\$ 1.8	\$ 2.4	\$ 4.6
Percent Growth	-	108%	72%	34%	89%

* = to nearest \$100,000

HISTORICAL GROWTH BY SEGMENT

- CDS derives virtually all of its revenues from its software products.

<u>Segment</u>	<u>1977 (\$ millions)</u>	<u>1981 (\$ millions)</u>	<u>AAGR (percent)</u>
• Software Products	\$3.7	\$23.5	59%
• International	<u>0.9</u>	<u>5.9</u>	<u>60</u>
TOTAL	\$4.6	\$29.4	59%

PROJECTED GROWTH BY SEGMENT

<u>Segment</u>	AAGR (percent)	<u>\$ millions/Fiscal Year</u>					
		<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
• Software Products	45%	\$23.5	\$34.1	\$49.4	\$71.6	\$104	\$151
• International	<u>45</u>	<u>4.9</u>	<u>8.6</u>	<u>12.4</u>	<u>18.0</u>	<u>26.1</u>	<u>35.3</u>
TOTAL COMPANY SIZE	45%	\$29.4	\$42.7	\$61.8	\$89.6	\$130	\$186

1986 MARKET SHARE

- Software products 1.26%.

COMPANY NAME: MANAGEMENT DECISIONS SYSTEMS, INC.

HEADQUARTERS: 200 Fifth Avenue
Waltham, MA 02254

STATUS: Privately held

EMPLOYEES: 190

PRESIDENT: John Wurts

FISCAL YEAR ENDS: 4/30

TELEPHONE: (617) 890-1100

HISTORY AND GROWTH

- Founded in 1967, Management Decisions Systems, Inc. (MDS) sells a single software product, Express, a broad, cross-industry decision support package for financial, marketing, and production management. Revenues derive principally from U.S. sales (90%) with the remainder from Europe (10%). Sixty percent of revenues are from professional services.
- Current developments include a push for international growth and a major (unspecified) development in software offerings. Personnel growth from 1980 to 1981 was 50% with most added to software services and customer support.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1980</u>	<u>1981</u>
Revenue (\$ millions)*	\$9**	\$10**	\$11.6**	\$16**	\$20

Percent Growth

Net Income (\$ millions)*

----- NOT AVAILABLE -----

Percent Growth

* = to nearest \$100,000

** INPUT estimate

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	1980 (\$ millions)	1981 (\$ millions)	AAGR (percent)
• Software Products	\$6.4	\$ 8	25%
• Professional Services	<u>9.6</u>	<u>12</u>	<u>25</u>
TOTAL	\$16	\$20	25%

PROJECTED GROWTH BY SEGMENT

<u>Segment</u>	AAGR (percent)	\$ millions/Fiscal Year					1986 (\$ millions)
		1981	1982	1983	1984	1985	
• Software Products	25%	\$ 8	\$10	\$12.5	\$15.6	\$19.5	\$24.0
• Professional Services	<u>25</u>	<u>12</u>	<u>15</u>	<u>18.8</u>	<u>23.4</u>	<u>29.3</u>	<u>36.0</u>
TOTAL COMPANY SIZE	25%	\$20	\$25	\$31.3	\$39.0	\$48.8	\$61.0

1986 MARKET SHARE

- All markets more than 1%.

COMPANY NAME: INFORMATION BUILDERS, INC.

HEADQUARTERS: 1250 Broadway
New York, NY 10001

STATUS: Privately Held

EMPLOYEES: 100

PRESIDENT: Gerald Cohen

FISCAL YEAR ENDS: 12/31

TELEPHONE: (212) 736-4433

HISTORY AND GROWTH

- Founded in 1975, Information Builders, Inc. (IBI) markets FOCUS, a non-procedural report preparation, data analysis, and comprehensive DBMS to over 800 companies worldwide.
- IBI has been experiencing rapid growth: it plans to double its foreign sales in 1982 over 1981; has increased its personnel by 66% in the past year; continues to offer new applications for its software products. No mergers or acquisitions are planned, though revenue growth may fall in FY 1982.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
Revenue (\$ millions)*	\$0.3	\$ 0.6	\$ 1.4	\$ 2.7	\$ 4.6	\$ 9.5
Percent Growth	-	100%	130%	93%	70%	105%
Net Income (\$ millions)*				----- NOT AVAILABLE -----		
Percent Growth						

* = to nearest \$100,000

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	<u>1977 (\$ millions)</u>	<u>1981 (\$ millions)</u>	<u>AAGR (percent)</u>
• Software Products	\$0.6	\$8.5	100%
• International	-	1.0	N/A
TOTAL	\$0.6	\$9.5	100%

PROJECTED GROWTH BY SEGMENT

		AAGR (percent)		\$ millions/Fiscal Year				
	Segment			1981	1982	1983	1984	1985
•	Software Products	25%	\$ 8.5	\$10.5	\$13.1	\$16.4	\$20.5	\$25.0
•	International	<u>52</u>	<u>1.0</u>	<u>2.0</u>	<u>3.0</u>	<u>4.5</u>	<u>6.0</u>	<u>8.0</u>
	TOTAL COMPANY SIZE	29%	\$ 9.5	\$12.5	\$16.1	\$20.9	\$26.5	\$33.0

1986 MARKET SHARE

- All markets less than 1%.

COMPANY NAME: COMPUTER TASK GROUP, INC.

HEADQUARTERS: 800 Delaware Avenue
Buffalo, NY 14209

STATUS: Public Corporation, OTC

EMPLOYEES: 1,200

PRESIDENT: David N. Campbell

FISCAL YEAR ENDS: 12/31

TELEPHONE: (716) 882-8000

HISTORY AND GROWTH

- Computer Task Group (CTG) was founded in 1966. It primarily provides professional services to Fortune 500 companies in the manufacturing, chemical, and steel industries and Fortune 300 financial companies in banking and insurance. It also provides processing services, turnkey systems, and software products. CTG is expanding its geographic focus to include all major U.S. economic centers.
- In late 1980, CTG acquired Neoterics, Inc., a professional services firm in Cleveland, OH, for a combination of common stock and cash totalling \$1.3 million. Net income for the first nine months of 1981 totalled \$798,000 on revenues of \$27 million, increases of 16% and 60% respectively over the same period in 1980.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$ 4.910	\$ 8.892	\$14.144	\$18.035	\$24.935
Percent Growth	-	81%	59%	28%	38%
Net Income (\$ millions)*	\$ (80)	\$ 328	\$ 525	\$ 632	\$ 1,006
Percent Growth	-	510%	60%	20%	59%

* = to nearest \$100,000

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	<u>(\$ millions)</u>					<u>Percent of AAG Total</u>	<u>(percent)</u>
	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>		
Professional Services	\$3.8	\$4.1	\$ 7.4	\$11.5	\$19.2	(77%)	50%
Batch Processing	-	2.2	2.5	2.3	2.7	(11%)	7
Integrated Systems	<u>1.1</u>	<u>2.6</u>	<u>4.2</u>	<u>4.3</u>	<u>3.0</u>	<u>(12%)</u>	<u>28</u>
	\$4.9	\$8.9	\$14.1	\$18.1	\$24.9	.	38%

PROJECTED GROWTH BY SEGMENT

	<u>Segment</u>	<u>AAGR (percent)</u>	<u>\$ millions/Fiscal Year</u>				
			<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
●	Professional Services	42%	\$30	\$45	\$63	\$88	\$123
●	Processing	11	3	3.3	3.6	4	4
●	Integrated Systems	<u>10</u>	<u>3.3</u>	<u>3.6</u>	<u>4</u>	<u>4.4</u>	<u>4.8</u>
	TOTAL COMPANY SIZE	38%	\$36.3	\$51.9	\$70.6	\$96.4	\$131.8
							\$182

1986 MARKET SHARE

- Professional Services 1%, all others less than 1%.

COMPANY NAME: TRIAD SYSTEMS, INC.

HEADQUARTERS: 1252 Orleans Drive
Sunnyvale, CA 94088

STATUS: Publicly Held, OTC

EMPLOYEES: 1,300

PRESIDENT: William W. Stevens

FISCAL YEAR ENDS: 9/30

TELEPHONE: (408) 734-9720

HISTORY AND GROWTH

- Founded in 1972, Triad is an OEM delivering turnkey systems for inventory management to narrowly targeted industries with large numbers of small business units having complex inventory management problems. The auto parts industry has been the mainstay of Triad's sales but it is seeking diversification into the retail hardware, warehousing, and time outlet industries.
- Sales faltered severely in the first quarter of fiscal year 1982 with net income falling 76% over the comparable period in fiscal year 1981. The problem is attributed to a poor economic climate. Stepped up marketing and sales efforts are expected by management to counter the problem in the short run with diversification expected to strengthen long-run performance.

REVENUE AND NET INCOME

	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
Revenue (\$ millions)*	\$7.3	\$ 14.8	\$ 30.8	\$56	\$78
Percent Growth	-	103%	108%	81%	39%
Net Income (\$ millions)*	\$0.781	\$ 1.6	\$ 3.3	\$ 5.0	\$ 8.7
Percent Growth	-	105%	106%	52%	74%

* = to nearest \$100,000

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	<u>1977 (\$ millions)</u>	<u>1981 (\$ millions)</u>	<u>AAGR (percent)</u>
• Integrated Systems	\$ 7.3	\$78.4	81%

PROJECTED GROWTH BY SEGMENT

<u>Segment</u>	<u>AAGR (percent)</u>	<u>\$ millions/Fiscal Year</u>					
		<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
• Integrated Systems	19%	\$78.4	\$71	\$85	\$110	\$144	\$18
TOTAL COMPANY SIZE	19%	\$78.4	\$71	\$85	\$110	\$144	\$18

1986 MARKET SHARE

- Integrated systems market 1.9%.

COMPANY NAME: McCORMACK & DODGE
HEADQUARTERS: 560 Hillside Avenue
 Needham Heights, MA 02194
STATUS: Privately Held **EMPLOYEES:** 400
PRESIDENT: Frank Dodge **FISCAL YEAR ENDS:** 12/31
TELEPHONE: (617) 449-4012

HISTORY AND GROWTH

- Founded in 1969, McCormack & Dodge (MD) develops and sells a complete line of financial software application packages for use on all major mainframes and minis. MD sales are to approximately 1,000 medium to large cross-industry corporations and to government organizations.
- In 1981, MD had trouble with the too early release of its new accounts payable package - reportedly now corrected. MD expects soon to offer applications packages to the business micro market. In March 1982, MD acquired HRIS Division of Dyatron, Inc., Birmingham, Al., for a total of \$4 million - \$800,000 cash with balance in notes over four years. HRIS sells payroll and personnel software products.

REVENUE AND NET INCOME

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Revenue (\$ millions)*	\$1.2	\$ 1.7	\$ 3.2	\$ 7.6	\$ 16.0
Percent Growth	-	~41%	84%	141%	111%

Net Income (\$ millions)*

----- NOT AVAILABLE -----

Percent Growth

* = to nearest \$100,000

HISTORICAL GROWTH BY SEGMENT

<u>Segment</u>	<u>1976 (\$ millions)</u>	<u>1980 (\$ millions)</u>	<u>AAGR (percent)</u>
• Software Products	\$1.2	\$16	91%

PROJECTED GROWTH BY SEGMENT

<u>Segment</u>	<u>AAGR (percent)</u>	<u>\$ millions/Fiscal Year</u>					
		<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
• Software Products	40%	\$25.6	\$35.8	\$50.2	\$70.2	\$98.3	\$138
TOTAL COMPANY SIZE		\$25.6	\$35.8	\$50.2	\$70.2	\$98.3	\$138

1986 MARKET SHARE

- Applications software products market 2.5%.

**APPENDIX A: ALPHABETICAL INDEX OF
COMPANIES ANALYZED**

APPENDIX A: ALPHABETICAL INDEX OF COMPANIES ANALYZED

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APPENDIX B: MICROCOMPUTER SOFTWARE VENDORS

APPENDIX B: MICROCOMPUTER SOFTWARE VENDORS

COMPANY NAME: LIFEBOAT ASSOCIATES

HEADQUARTERS: 1651 Third Avenue
New York, NY 10028

PRESIDENT: Tony Gold **SALES:** \$5 million (1980)
 \$10 million (1981)

TELEPHONE: (212) 860-0300

PRINCIPAL PRODUCT: FPL (Financial Planning Language)

Lifeboat is a mail-order retailer of microcomputer software produced by individuals

COMPANY NAME: MICROSOFT

HEADQUARTERS: 400, 108th Ave. N.E.
Suite 200
Bellevue, WA 98004

PRESIDENT: William H. Gates **SALES:** \$5 million (1980)
 \$14 million (1981)

TELEPHONE: (206) 454-1315

PRINCIPAL PRODUCT: Microsoft Basic (language) and "soft cards"

INVESTORS: Technology Venture Investors (\$1 million on 9/20/81)

COMPANY NAME: MICROPRO INTERNATIONAL

HEADQUARTERS: 1299 4th St.
San Rafael, CA 94901

PRESIDENT: Seymour I. Rubenstein **SALES:** \$6 million (1981)
 \$18 million (1982)E

TELEPHONE: (415) 457-8990

PRINCIPAL PRODUCT: WORDSTAR (word processing)
 DATASTAR (file search program)

INVESTORS: Adler Group (\$1 million in 3/81) for 25%

COMPANY NAME: VISICORP (Alias Personal Software)

HEADQUARTERS: 2895 Zanker Rd.
San Jose, CA 95134

CHAIRMAN: Dan Fylstra **SALES:** \$4 million (1980)
 \$20 million (1981)

PRESIDENT: Terry Opdendyk

TELEPHONE: (408) 946-9000

PRINCIPAL PRODUCT: Exclusive distributor of Visicalc (Electronic Worksheet)

INVESTORS: Arthur Rock and Venrock Associates (\$0.5 million, 4/80).
Lamoreaux, Glyn & Associates; Fazez Sarofirn; Franklin
Johnson; Newmarket Cazenove; David Karetksy

COMPANY NAME: DIGITAL RESEARCH, INC.

HEADQUARTERS: Box 579
160 Central Ave.
Pacific Grove, CA 93950

PRESIDENT: Gary A. Kildall **SALES:** \$3.5 million (1980)
 \$6 million (1981)

TELEPHONE: (408) 649-3896

PRINCIPAL PRODUCT: CP/M (operating system)

INVESTORS: T.A. Associates; Hambrecht & Quist; Page Mill Partners; Venrock (8/81)

COMPANY NAME: SOFTWARE PUBLISHING CORP.

HEADQUARTERS: 1901 Landings Drive
Mountain View, CA 94043

PRESIDENT: Fred Gibbons **SALES:** \$2 million (1981)

TELEPHONE: (415) 962-8910

PRINCIPAL PRODUCT: PFS (Personal Filing System)

INVESTORS: Melchor Venture Management (\$250,000, 5/81)

COMPANY NAME: SORCIM CORP.
HEADQUARTERS: 405 Aldo
Santa Clara, CA 95050
PRESIDENT: Bob Robertson **SALES:** \$1.5 million (1981)
TELEPHONE: (408) 727-7634
PRINCIPAL PRODUCT: Makers of Supercalc (electronic worksheet)
INVESTORS: Melchor Venture Management

COMPANY NAME: ON-LINE CORP.
HEADQUARTERS: 1201 San Luis Obispo
Hayward, CA
PRESIDENT: D. Mandell **SALES:** \$1 million (1981)
TELEPHONE: (415) 487-2300
PRINCIPAL PRODUCT: Supervisicalc, Report Manager
INVESTORS: Not known

COMPANY NAME: SOFTSEL COMPUTER PRODUCTS INC.

HEADQUARTERS: 8295 South La Cienega Blvd.
Inglewood, CA 90301

PRESIDENT: **SALES:** \$15 million (1981)
MARKETING MANAGER: Eric Gaer (formed 1980)

TELEPHONE: (213) 670-9461

PRINCIPAL PRODUCT: Personal and recreational software distributors to dealers

INVESTORS: Not known

APPENDIX C: INPUT 150 RANKING

TOTAL COMPUTER SERVICE REVENUES

---RANK---	1980	1979	COMPANY	REVENUE \$MILLION	1980	1979	GROWTH	PERCENT	RANK	COD
1	A 2	INTERNATIONAL BUSINESS MACHINES CORPORATION (IBM)		730	525	39		38	2334	
2	B 1	CONTROL DATA CORPORATION (CDC)		640	548	17		128	622	
3	I 3	COMPUTER SCIENCES CORPORATION (CSC)		560	415	35		53	537	
4	A 2	AUTOMATIC DATA PROCESSING, INC. (ADP)		481	385	25		83	2147	
5	B 4	BOEING COMPUTER SERVICES, INC. (BCS)		430	400	7		158	429	
6	E 3	ELECTRONIC DATA SYSTEMS CORPORATION (EDS)		414	325	27		76	872	
7	G 4	GENERAL ELECTRIC INFORMATION SERVICES COMPANY		390	320	22		100	2326	
8	M 8	MCDONNELL DOUGLAS AUTOMATION COMPANY (MCAUTO)		367	309	19		120	2143	
9	A 11	ARTHUR ANDERSEN AND COMPANY		205	160	28		72	3123	
10	T 5	TYNSHARE, INC.		184	165	12		147	2153	
11	H 10	SYSTEM DEVELOPMENT CORPORATION (SDC)		177	163	9		155	2151	
12	N 6	NCR CORPORATION		139	125	11		148	2107	
13	M 12	MARTIN MARIETTA DATA SYSTEMS		136	94	45		29	2396	
14	J 7	BRADFORD NATIONAL CORPORATION		130	110	18		125	2505	
15	C 16	NATIONAL CSS, INC.		127	102	25		92	2118	
16	I 8	INFORMATICS, INC.		126	112	12		145	2329	
17	P 9	PLANNING RESEARCH CORPORATION (PRC)		125	104	20		110	2344	
18	J 17	MITRE CORPORATION		124	99	25		82	2507	
19	V 18	UNITED INFORMATION SYSTEMS		116	96	21		103	4046	
20	O 10	CHASE MANHATTAN BANK		108	84	29		66	2547	
21	H 11	TEXAS INSTRUMENTS		108	70	54		19	3714	
22	G 21	GRUMMAN DATA SYS.		107	85	25		81	1018	
23	J 12	WESTERN GEOPHYSICAL		106	77	38		43	6023	
24	I 13	GEOSOURCE, INC.		100	80	25		84	3985	
25	F 14	UNIVERSITY COMPUTING (WLY)		99	87	14		138	2670	
26	S 15	SHARED MEDICAL SYSTEMS CORPORATION		91	70	29		68	1715	
27	S 16	SUN INFORMATION SERVICES COMPANY		90	65	38		40	2337	
28	T 17	CONS_SHARE, INC.		88	67	32		60	2156	
29	K 18	SECURITIES INDUSTRY AUTOMATION		86	71	21		104	1702	
30	Q 19	HONEYWELL, INC.		78	69	13		140	1051	
31	L 18	XEROX COMPUTER SERVICES		74	60	24		95	2384	
32	S 19	BANK OF AMERICA CORP		74	63	18		122	2532	
33	P 20	ANACOMP, INC.		73	38	89		6	430	
34	Y 35	DATA CROWN, INC.		71	60	18		124	2929	
35	Z 33	SPERRY CORPORATION		70	62	13		141	2960	
36	M 37	NATIONAL DATA CORPORATION		67	54	25		90	2339	
37	W 28	BURROUGHS CORPORATION		66	70	(6)		173	303	
38	C 21	CCH COMPUTAX, INC.		62	49	26		80	455	
39	R 22	TRW INFORMATION SERVICES		62	62	0		170	3791	
40	D 34	QUOTRON SYSTEMS, INC.		57	43	32		59	1610	

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TOTAL COMPUTER SERVICE REVENUES

RANK		COMPANY	COID	RANK
1980	1979			
		REVENUE \$ MILLION	1979	PERCENT GROWTH
1980	1979	1980	1979	
41 45	DIGITAL EQUIPMENT CORPORATION (DEC)	54	40	52 793
42 24 41	AMERICAN MANAGEMENT SYSTEMS, INC.	53	44	111 117
43 39	EQUIFAX, INC.	53	47	162 2472
44 25 52	MANAGEMENT SCIENCE AMERICA, INC.	52	39	37 2336
45 26 40	FIRST DATA RESOURCES, INC.	50	46	45 929
46 46	PEAT, MARWICK AND MITCHELL	50	40	25 3688
47 47	DATA RESOURCES, INC. (DRI)	48	40	117 721
48 48	NIELSEN (A.C.) COMPANY	47	40	126 3765
49 27 43	SYSTEMS CONSULTANTS, INC.	46	42	10 153 2193
50 28 53	SEISMOGRAPHIC SERVICES CORPORATION	46	37	24 6022
51 29 50	REYNOLDS AND REYNOLDS COMPANY, THE	46	39	16 135 2349
52 140	CITICORP	45	11	309 1 2550
53 30 60	C.A.C.I., INC.	45	26	11 2136
54 31 54	TELECREDIT, INC.	44	37	123 1841
55 49	BUNKER RAMO CORPORATION	43	40	7 159 299
56 44	TRANS UNION CORPORATION	43	41	6 163 2656
57 57	MELLON BANK DATA CENTER	40	30	33 54 2941
58 32 55	CINCOM SYSTEMS, INC.	40	33	21 109 376
59 64	WESTINGHOUSE CORPORATION	39	27	41 34 6010
60 33 58	SCIENCE APPLICATIONS, INC.	37	30	25 91 1688
61 34 69	DIGICON, INC.	37	26	46 28 795
62 35 63	APPLIED DATA RESEARCH	37	29	51 155
63 36 56	SYSTEMS AND COMPUTER TECHNOLOGY	37	31	118 2183
64 59	ARTHUR D. LITTLE, INC.	37	30	23 96 2512
65 67	ERNST AND WHINNEY	37	26	40 36 6005
66 61	MANUFACTURING DATA SYSTEMS, INC. (MDSI)	36	30	19 119 2355
67 70	HEWLETT-PACKARD COMPANY	34	25	36 51 2315
68 37 65	SYSTEMATICS	33	27	98 2370
69 38 66	ADVO SYSTEMS, INC. (ADVO)	32	26	20 116 16
70 39 73	FAST-TAX	30	24	25 86 3867
71 71	GTE TELNET INFORMATION SYSTEMS	29	25	16 136 971
72 76	LITTON MELLONICS	29	23	29 73 2486
73 40 83	DYATRON CORP.	29	20	47 25 569
74 60	STATISTICAL TABULATING CORPORATION	28	30	(8) 174 1790
75 92	NLT COMPUTER SERVICES CORPORATION	27	18	50 21 2106
76 81	MEAD CORPORATION	27	20	36 49 1328
77 93	LAMBDA TECHNOLOGY	27	18	50 22 3680
78 74	LOGICON INC	27	23	17 129 1238
79 75	OHIO COOPERATIVE LIBRARY CORPORATION (OCLC)	27	23	18 121 6016
80 41 91	CULLINANE CORPORATION	27	18	46 27 635

TOTAL COMPUTER SERVICE REVENUES

---RANK---	1980	1979	COMPANY	REVENUE \$MILLION	1979	GROWTH PERCENT	RANK	COID
81	86		ADVANCED SYSTEMS, INC.	26	19	37	47	6021
82	109		CABLE DATA	26	16	65	14	3957
83	42	82	BOLT BERANEK AND NEWMAN, INC.	25	20	27	79	6011
84	84		CONFUSERV, INC.	25	19	30	64	450
85	90		STSC, INC.	25	18	37	44	1696
86	62		OPTIMUM SYSTEMS, INC. (OSI)	25	30	(17)	178	1484
87	87		POLICY MANAGEMENT SYSTEMS	24	19	27	77	1550
88	4304		PANSOPHIC SYSTEMS, INC.	24	16	50	23	2342
89	4494		KIRCHMAN CORPORATION	24	18	33	55	946
90	80		ARTHUR YOUNG AND CO	24	20	20	112	6020
91	95		SEI CORPORATION	23	18	28	75	1666
92	88		COOPERS AND LYBRAND	23	19	21	105	6007
93	78		U.S. DATACORP	23	21	9	154	1900
94	99		INSURANCE SYSTEMS OF AMERICA	22	17	30	61	1139
95	100		TECHNICAN MEDICAL INFORMATION SYSTEMS	22	17	30	62	1833
96	4517		COMPUTER TASK GROUP, INC.	22	14	59	16	560
97	79		RAPIDATA	21	20	5	165	2155
98	103		ANALYSTS INTERNATIONAL CORPORATION	21	17	28	69	131
99	111		SEISCOM DELTA	21	15	40	35	1706
100	96		DASD CORPORATION	21	18	17	130	651
101	97		DON JONES INFORMATION SERVICES, INC.	21	18	17	131	3743
102	115		CONFUTER SHARING SERVICES, INC.	20	14	43	32	548
103	85		CGA COMPUTER ASSOCIATES	20	19	5	166	3225
104	102		INTERNATIONAL COMPUTAPRINT CORPORATION	20	17	21	107	3756
105	98		LOCKHEED INFORMATION SYSTEMS	20	18	12	143	1233
106	77		COMPUTER NETWORK CORPORATION (COMNET)	20	22	(10)	176	522
107	119		COMPUTER COMPANY, THE	19	13	46	26	2374
108	101		STANDARD AND POORS CORPORATION	19	17	12	146	3301
109	110		DATA COMMUNICATIONS CORPORATION	19	15	22	101	675
110	120		BDM INTERNATIONAL	18	13	41	33	6025
111	114		AFFILIATED COMPUTER SYSTEMS	18	14	28	70	3359
112	121		COMPUTER ASSOCIATES, INC.	18	13	38	41	464
113	72		NATIONAL SHARERDATA CORPORATION	18	25	(23)	179	1436
114	123		TELOS COMPUTING	18	13	44	30	1848
115	116		FIRST COMPUTER CORPORATION	18	14	29	67	3199
116	135		SOFTECH INC.	18	11	57	17	1742
117	108		KEANE ASSOCIATES, INC.	17	16	10	152	2004
118	112		CALCULON CORPORATION	17	15	13	139	3006
119	105		AGENCY RECORDS CONTROL, INC.	17	16	6	162	2516
120	89		RAND INFORMATION SYSTEMS, INC.	17	19	(10)	175	2504

TOTAL COMPUTER SERVICE REVENUES

RANK		COMPANY	REVENUE \$ MILLION		GROWTH		COID
1980	1979		1980	1979	PERCENT	RANK	
121	132	COMPUTER DATA SYSTEMS	16	12	38	42	408
122	107	ADVANCED COMPUTER TECHNIQUES CORPORATION	16	16	3	168	6024
123	118	INFORMATION SCIENCE, INC.	16	13	21	106	1119
124	124	DOOLE AND BARRAGE	16	13	28	74	279
125	169	MCCORMACK AND DODGE	16	8	111	4	1322
126	148	TANDY CORPORATION	16	10	60	15	6014
127	179	SCIENCE MANAGEMENT CORPORATION	16	4	300	2	734
128	122	TOUCHE ROSS	16	13	23	97	6019
129	174	CONTINUUM	16	7	143	3	1813
130	125	SOFTWARE INTERNATIONAL CORPORATION	16	13	24	94	2365
131	167	TECHNOLOGY DEVELOPMENT OF CALIFORNIA	15	9	79	10	3793
132	126	PENTAMATION ENTERPRISES, INC.	15	13	21	109	2343
133	141	SOFTWARE DESIGN ASSOCIATES, INC.	15	11	36	50	1749
134	129	DAO	15	12	25	87	3387
135	113	DATA GENERAL CORPORATION	15	15	0	171	686
136	158	SOFTWARE AG OF NORTH AMERICA, INC.	15	9	67	13	2363
137	144	CYCARE SYSTEMS	15	11	37	46	490
138	136	CONDATA NETWORK	14	11	28	71	6012
139	127	BONINE INFORMATION SYSTEMS, INC.	14	12	17	134	283
140	142	DIAL COMPUTER SYSTEMS CORPORATION	14	11	27	78	791
141	130	BOOZ ALLEN & HAMILTON, INC.	14	12	17	132	281
142	137	CUTLER WILLIAMS, INC.	14	11	25	68	639
143	106	KEYDATA CORPORATION	14	16	(13)	177	2152
144	139	SAFEGUARD BUSINESS SYSTEMS, INC.	14	11	25	89	1677
145	146	SCIENCE DYNAMICS CORPORATION	14	10	33	58	1697
146	155	MATHEMATICA INC.	13	9	43	31	1313
147	143	PHARMACEUTICAL CARD SYSTEMS	13	11	22	102	1536
148	128	INFORMATION SYSTEMS DESIGN, INC.	13	12	7	161	1122
149	149	INTERMETRICS, INC.	13	10	30	63	3217
150	131	ASSOCIATED PRESS	13	12	8	157	6013
151	138	INTEL SYSTEMS CORPORATION	13	11	17	127	2335
152	171	EXECUCOM SYSTEMS CORPORATION	13	7	86	7	898
153	166	CONFUNWARE	13	9	52	20	3360
154	156	MONCHIK-WEEBER	13	9	37	49	1363
155	150	ACCOUNTING CORPORATION OF AMERICA	12	10	20	113	46
156	159	DST, INC.	12	9	33	56	2514
157	165	SYSTEMS AND PROGRAMMING RESOURCES, INC.	12	9	40	37	2189
158	175	SYSTEMS AND APPLIED SCIENCES	12	7	85	9	3397
159	151	CYBERNETICS AND SYSTEMS	12	10	20	114	641
160	152	MEDICUS SYSTEMS CORPORATION	12	10	20	115	1344

INPUT I&D RATING
TOTAL COMPUTER SERVICE REVENUES

RANK			REVENUE \$MILLION			GROWTH		RANK		COID	
1980	1979	COMPANY	1980	1979	PERCENT						
161	133	AGS COMPUTERS, INC.	12	12	4	167	18				
162	134	REMOTE COMPUTING CORPORATION	12	12	2	169	1638				
163	145	AUTOMATED CONCEPTS	11	10	11	149	201				
164	160	DELOITTE, HASKINS AND SELLS	11	9	22	99	6017				
165	177	STERLING SYSTEMS	11	6	83	9	3394				
166	168	SYSTEMS RESEARCH LABORATORIES	11	8	33	57	6009				
167	154	PRICE WATERHOUSE	11	10	16	137	3260				
168	147	SCIENTIFIC COMPUTERS INC	11	10	7	160	2356				
169	173	ONLINE BUSINESS SYSTEMS	11	7	54	18	2341				
170	172	SPIRIDILLIS ASSOCIATES	11	7	50	24	1783				
171	161	COMPUTER HORIZONS	11	9	17	133	504				
172	176	ANHERST ASSOCIATES, INC.	10	6	68	12	124				
173	153	SAFECON, INC.	10	10	0	172	1676				
174	162	SIGMA DATA COMPUTING	10	9	11	150	2358				
175	163	PROPRIETARY COMPUTER SYSTEMS	10	9	11	151	1590				
176	170	ASTRADYNE COMPUTER INDUSTRIES	10	7	39	39	190				
177	178	APPLE COMPUTER	10	5	100	5	6015				
178	157	FOORMAN-DOUGLAS CORPORATION	10	9	6	164	1554				
179	164	NESHAMINEY VALLEY INFORMATION PROCESSING	10	9	12	144	1446				
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			10,428			8,490					

**APPENDIX D: INFORMATION SERVICES
INDUSTRY FORECASTS**

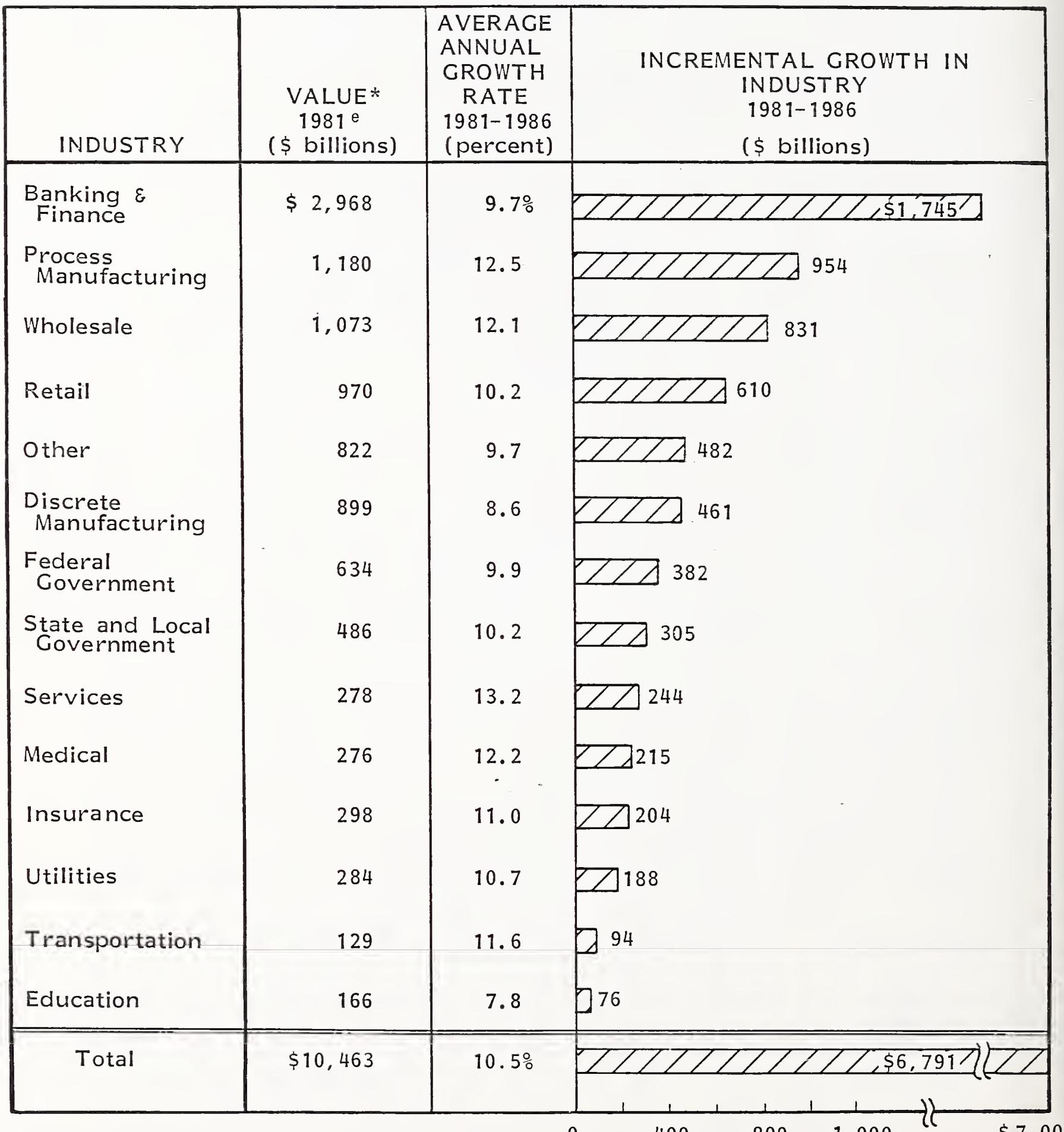
EXHIBIT D-1

INFORMATION SERVICES - MARKET FORECAST
BY INDUSTRY SECTOR, 1981-1986

INDUSTRY SECTOR	USER EXPENDITURES BY INDUSTRY SECTOR, 1981-1986								
	1980 (\$M)	1981 (\$M)	GROWTH 1980-1981 (%)	1982 (\$M)	1983 (\$M)	1984 (\$M)	1985 (\$M)	1986 (\$M)	AAGR 1981-1986 (%)
Discrete Manufacturing	\$ 1,967	\$ 2,461	25%	\$ 3,096	\$ 3,922	\$ 5,009	\$ 6,429	\$ 8,309	28%
Process Manufacturing	1,342	1,718	28	2,220	2,888	3,775	4,960	6,560	31
Transportation	332	416	25	525	665	851	1,094	1,414	28
Utilities	558	667	20	797	957	1,155	1,398	1,699	21
Banking and Finance	2,455	2,881	17	3,386	3,999	4,747	5,664	6,806	19
Insurance	1,127	1,352	20	1,626	1,965	2,381	2,900	3,544	21
Medical	754	900	19	1,081	1,311	1,598	1,964	2,435	22
Education	253	291	15	335	387	449	523	610	16
Retail	801	964	20	1,169	1,429	1,762	2,187	2,736	23
Wholesale	714	858	20	1,044	1,286	1,599	2,009	2,550	24
Federal Government	1,921	2,361	23	2,944	3,694	4,659	5,905	7,520	26
State and Local Government	1,019	1,280	26	1,617	2,040	2,584	3,273	4,157	27
Services	850	1,010	19	1,200	1,437	1,728	2,091	2,536	20
Other	722	868	20	1,047	1,268	1,549	1,904	2,362	22
Total	\$14,815	\$18,027	22%	\$22,085	\$27,245	\$33,843	\$42,305	\$53,227	24%

MAY NOT TOTAL DUE TO TRUNCATION.

EXHIBIT D-2
INDUSTRY GROWTH, 1981-1986



^e = ESTIMATED

*VALUE HAS BEEN DEFINED AS COMPARABLE UNITS OF MEASURE OF REVENUE BASE, SUCH AS VALUE OF SHIPMENTS, SALES, OPERATING REVENUES, ETC. THE VALUE FOR BANKING AND FINANCE IS ASSETS.

